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FUNCTIONAL SYNDROMES IN MEDIASTINAL DISPLACEMENT WITHOUT ACTIVE PULMONARY LESIONS

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The object of this study is to put in evidence, by means of adequate functional tests, the influence which the mediastinal displacements can have on the action of the mediastinum itself, considered in its triple expression of partition or septum, of independent space, and of a passage way to the great vital currents (Monaldi).

I must say first of all that the patients whom I have studied did not show specific active pulmonary lesions. This is because the results of the researches were to be as far as possible the expression of only the mediastinal function, without repercussion of the tuberculous pulmonary factors which, as it is known, have an effect on the comportment of the heart and the circulation but principally on the respiratory system, falsifying, therefore, the results of every research done to explore the sole mediastinal activity.

The technique, hence, had been selected in such a way as to put in evidence how much and how the mediastinum, displaced from its normal position, would show its numerous altered activities. I used first of all the clinical and radiological examinations only to put in evidence the modifications of its seats and its relations. From these examinations we cannot learn more (except in the case of eventual conclamated syndromes of disequilibrium) because they are not sufficient in the other numerous cases to clarify the intimate repercussions on the various apparatuses which originate from the very displacements. The same occurred in the cases which I studied.

But before I explain the technique of my researches, it seems opportune to illustrate briefly the constitution of the mediastinum, its activities, and the repercussions of these on the heart circulation and on the respiratory system.

Anatomically the mediastinum is the space which occupies the median part of the thoracic cavity; it contains those organs or parts of the organs which though they are a part of the thorax, are out of the respiratory apparatus. It is bounded anteriorly by the posterior surface of the sternum and by the costal cartilages, posteriorly by the anterior surface of the vertebral column, laterally by the right and left mediastinal pleuræ, below by the diaphragm, while above it communicates freely with the neck. In this direction the limits are merely conventional and is represented by a transverse plane passing anteriorly through the first rib and posteriorly through the intervertebral disc between the seventh cervical and the first dorsal rib.

The form of the mediastinum is very irregular because it is broader behind than in front, more so below than above and more extended to the left than to the right and is constricted in the middle forming an hourglass.

It can be divided into two parts by a horizontal plane passing through the pulmonary peduncles: An upper cavity, which is named the superior mediastinal cavity, contains the large air tubes (trachea) and the tracheo-bronchial lymph glands; the inferior mediastinum contains the heart, pericardium and the large vessels.

But the division according to classical criteria is made in anterior mediastinum and posterior mediastinum by means of a vertical plane passing through the bifurcation of the trachea. Between the anterior and posterior mediastinum, there exists a distinct anatomical separation. This is formed above by the prolongation of the deep layers of the middle cervical aponeurosis which is inserted on the superior margin of the pericardial fibrous sac and below by the posterior surface of the same sac.

The prebronchial or anterior mediastinal cavity has an hourglass construction just above the heart. According to Tillaux, it is divided into five successive strata which contain the following organs:—

I. Stratum.—Loose areolar tissue, the remains of the thymus and the brachial-cephalic venous trunk.

II. Stratum.—Anterior portion of the pericardium, diaphragmatic vessels and nerves.

III. Stratum.—Anterior surface of the heart, pulmonary artery, aorta, brachial-cephalic arterial trunk and behind the left common carotid artery, left subclavian and superior vena cava.

IV. Stratum.—Posterior surface of the heart, atrii, pulmonary veins, and inferior vena cava.

V. Stratum.—Posterior portion of the pericardium.

The Posterior Mediastinal Cavity contains the tracheo-bronchial lymphatics, aortic arch, descending aorta, the azygos, hemiazygos and accessory hemiazygos veins, the vagus and splanchnic nerves, œsophagus the thoracic duct and some lymph glands.

All the organs, whether they are in the anterior or posterior mediastinal cavity, are immersed in a cellulo-adipose tissue, which is intersected with fibrous tissue, mixed with numerous elastic fibres which penetrate in all the spaces. This confers an intimate connection and a considerable solidarity to all the organs which have nothing at all in common. On the other hand, because of its lacunæ or gaps and laxity of the connective tissue, the mediastinum may be considered as a broad and complex lymphatic fissure with numerous lymph glands.

The walls of the mediastinum are constituted by the soft and depressible formations and therefore this space is of irregular form. In two points they show a particular weakness. The first is antero-superior and the second is postero-inferior. The importance of these points in the collapse therapy is well-known as they are the seats of the so-called "mediastinal hernias." The first point is at the level of the third or fourth rib just behind the sternum, the seat of the thymus in childhood. The other point is situated in the posterior mediastinum below and is bounded anteriorly by the œsophagus and the heart and posteriorly by the aorta and the vertebral column. The pleural layers of the two sides, however, are further being separated by the œsophagus and the aorta, only united by the loose connective tissue.

Functions of the Mediastinum

Though the mediastinum, in its anatomic definition, seems without specific functions, however, if we consider the relations of its seat, the constitution of the different parts of this space, the repercussions which the lungs with their static position and with their incessant dynamic activity exercise on it, a complexity of conditions may be foreseen, which gives to such a space a particular functional physiognomy, following an external direction in relation to the respiratory system and following an internal direction in relation to the organs or parts of the organs contained in it and lastly following a reciprocal direction between intra and extra mediastinal organs. Such a particular physiognomy shows itself especially with a regulating action of the respiration and circulation. (According to Monaldi they are divided into two headings).

Mechanical Thoraco-pulmonary Equilibrium. As a matter of fact, the mediastinum is considered as a partition septum between the two hemi-thoraxes. It is able to assure the static and dynamic independence between the two lungs functioning as a mechanical centre and eliminating the possible interferences connected to the oscillations of the pleuric depressions and alternating modifications in the volumes of the two lungs. In a normal animal a change of pressure occurring in one pleural cavity is reflected in the other because air passes through the thin mediastinum either through connections, by rupture, or by diffu-

sion. In man where this does not occur, the difference of pressure on the two sides forces the mediastinum towards the sound side, thereby decreasing the air content of that lung.

Because of its anatomic structure, the flexibility of the walls, for the ample internal fissures, for the laxity of tissues, for the presence of numerous elastic fibres, and for the relative independence of the organs contained in it, a physiologically detensive homogeneous stratum is created in it. This stratum is different in the various moments of the respiratory activity, so that the endopleuric depressions of one side will find in it a sufficient allayer for its complete compensation in order to eliminate the contralateral repercussions. If this will not be the pleuric depression of one lung it would limit and hinder the action of the opposite lung.

Endomediastinal detensive state and circulation of the blood. The effect of the pleuric depression which manifests itself on both sides of the mediastinum, provocates in the interior of it a homogeneous detensive state which will have repercussions over all the organs which are susceptible to be modified. Thus, the trachea and bronchi resist because of the relative rigidity of their walls while the œsophagus despite the flexibility of its walls, is not deformed, because they (walls) are near to each other. Instead the lymphatics (lacunæ and collectors) suffer notably from such an action because of the flexibility of their thin walls and the low pressure that dominates in them. The same happens, though in a minor degree to the veins and in a still more minor degree to the atrii, considering them as an immediate continuation of the venous system. The action is double, static and dynamic and is bound to the different values of the pleuric pressure. During the respiratory pause the detensive state manifests itself homogeneously in all directions, maintaining the vessels open and favouring in this way the centripetal course of the blood. During the respiratory activity the repercussions manifest themselves in relation to the modifications of the values of the endopleuric depressions with a consequent inspiratory exaltation and expiratory limitation.

In confirmation of these notions I must cite the researches of Monaldi and Galamini on the jugular pulse in relation to the different modalities of the respiration. With every respiration blood is aspirated into the thorax and the veins tend to collapse; with every expiration the flow is impeded, and the veins become distended. These researches clearly show the importance of the respiratory mechanism in the regulation of the centripetal course of the blood. In fact even in the normal respiratory activity the inspiration favours the flow of the blood into the right atrium and probably facilitates in this the systolic contraction and diastolic dilatation; while the expiration creates a moderate obstacle to these activities so that there results a rythmic regime more efficient than a constant continuous flow. All other respiratory modalities only accentuate such a regime, with repercussions always stronger in one way or the other according to the prevalence of the inspiratory or expiratory thoraco-pulmonary position. There are more important modifications of the jugular pulse in the Valsalva and Müller tests.

A closer examination of the particular endothoracic conditions in the different modalities of respiration, shows how the modifications in the course of the venous pulse are not the result of the particular state of the lung or of the wall but of their relations of position and hence the result of the endopleuric pressure and its oscillations (Monaldi).

In eupnea or in the deep respiration there is regular alternating oscillation which is maximum during inspiration and minimum during expiration. In the inspiratory and expiratory dyspnœa, there exists a prevalence of the maximum or minimum. In the tachypnea, there are small and irregular oscillations. In the inspiratory apnœa there is a strong initial depression which is soon neutralised by the sinking of the wall. In the expiratory apnœa there is minimum depression. In phonetic speech it begins with low values and goes always down. In Valsalva test it passes to positive values, while in the Müller's test the negative values are enormous. It is in relation to these variations that the flow of blood from the system to the heart shows that particular curve which is noticed by the modifications of the phlebogram. However, it is logical to admit that what happens to the general circulation is repeated for the circulation of the pulmonary veins with successive inspiratory attraction and expiratory abatement.

Venous pressure. Another repercussion of the mediastinal detensive state is in the venous pressure which appears evident from the modifications that intervene on the centripetal flow of the blood on account of the effect of the respiratory activity. Thus the increase of the venous pressure during cough (5 to 7 cm. of water) and to still greater degree during

Valsalva's test (over 60 cm.), small modifications during the inspiratory apnœa and during the Müller's test (2 to 4 cm.) and the clinical demonstrations, put in evidence the importance of mediastinum in the regulation of the bilateral equilibrium of the venous pressure.

As a matter of fact the repercussions of the endopleuric pressures on the mediastinum, which undoubtedly constitute a regulatory element of the general venous pressure, generally compensate themselves, when exalted, by a more rapid and more abundant circulation, for which the endovenous tensive state undergoes minimal displacements. When pleuric pressures become positive (as during cough and Valsalva test), not only the mediastinal detensive state is nullified but a real compression is created on it which reflecting itself on the flexible parts of the venous system, constitutes difficulty to the circulation and a consequent increase of the venous pressure.

The regulation of the venous pressure between the two sides is connected with the neutral position of the various intra-mediastinic organs and the detensive state which manifests itself homogeneously upon them in all directions. So that when pathologically a disequilibrium between the endopleuric pressure of the two hemi-thoraxes sets in, there will be an increase of the venous pressure on the side where the pleuric depression is less. It is evident that these observations concerning the centripetal course of the blood and the venous pressure are to be considered possible, and probably may be to a greater degree for the lymphatic circulation.

The behaviour of the blood in the inferior vena cava deserves a separate consideration for which it is logical to admit a repercussion of the mediastinal detension analogous to that of the superior vena cava; to which contributes also the intra-abdominal pressure which being opposite to the thoracic, will also cooperate to the facilitation of the inspiratory venous discharge and expiratory abatements. Eppinger, Hofbauer and Stæhelin conclude in the same sense.

A third action of the mediastinal detensive state and of its neutral position is observed on the cardiac activity and on the arterial circulation. For which it can be maintained that the static dynamic conditions of the two hemi-thoraxes, which repercuss themselves on the mediastinum, have a direct and an indirect action on the heart and consequently on the arterial circulation. Monaldi thinks that as far as the atrii are concerned the value of the direct action is maximum; over the ventricles the repercussion is probably minimum. To this direct action with facilitation of the diastole, Brauer gives very low value while Minkowski and Tigerstedt give it a great importance. To these complex and important actions of mediastinum, considered as a dividing septum, are confronted the alterations of the value which delineate them, when for whatever cause the mediastinum loses this function.

Types of Mediastinal Displacements

The mediastinal displacements can be classified in three different types:—

I. *Static Displacement*—total or partial dislocation of the mediastinum which is not influenced by the respiratory movements.

II. *Dynamic Displacement*—mediastinal displacement which is observed during one or both phases of the respiration, while at rest it returns to its original seat.

III. *Static-dynamic Displacement*—permanent dislocation of the mediastinum with opposite modifications during the respiratory phases without ever reaching the normal position of equilibrium.

The cases which I observed, show static mediastinal displacements, for which many authors have already observed the influence on the respiratory volume, on the cardio-circulatory activity, and on the thoracic respiratory movements.

Thus, in so far as the values of the respiratory volume are concerned, very often a reduction of vital capacity is observed, together with a reduction of the current air, while the complementary air may present a greater diminution in respect to the reserve air. The pulmonary ventilation may be increased on account of the exaggerated respiratory frequency.

In these cases, for the modifications of the respiratory mechanism, it must be taken into consideration the existence of the passed pulmonary alterations or of eventual thoracic operations which have a great influence upon the course of the pneumographic curves.

In its function as an independent space it has already been seen that the mediastinum influences and regulates the cardiac function and the general circulation. The direct researches in this sense, for the arterial pressures, for the power of circulatory

adaptation with static and dynamic tests, for the arterial pulse with the sphygmographs, for the venous pulse with the phlebograms and with the cardiogram for the cardiac activity, put in evidence, in presence of mediastinal dislocations, various disturbances, such as systolic hypotension, diastolic hypertension, hyposphygmia, tachycardia, hyposthenic reactions, sphygmoasthenic or hypersthenic transitory in the different positions of the body and after the physical exercise, variations of arterial frequency, force and rhythm, abnormal tracing of the phlebogram and exaggerated inspiratory or expiratory variations of the cardiogram.

In so far as the function of the mediastinum as a passage way is concerned, it insures the free regularisation of the circulatory, nervous, and alimentary aerial currents. For these first (circulatory) one may observe differences and various behaviours through the bilateral sphygmographic exploration of the radial pulse and with the bilateral control of the venous pressure which physiologically gives equal values on the two sides. Differences of behaviour which may sometimes alone lead to a synthetic opinion on the relations between the respiration and the circulation.

From these theoretical presuppositions and keeping in mind the results of the experimental observations, following the system adopted in the Physio-Pathological Laboratory of the Carlo Forlanini Institute, under the guidance and advice of Prof. V. Monaldi, I have my researches as follows:—

I. Functional Tests of Respiration

A. Volume of respiration. (1) Total capacity of respiratory organs (CPa), (2) Vital capacity (CV), (3) Functional capacity of equilibrium (CPe).

B. Their Components: Current or Tidal air (AC), Complemental air (Ac), Supplemental or Reserve air (Ar), Residual air (AR), Air of pulmonary Ventilation (AV), Respiratory Frequency (Fr).

C. Respiratory Indices: Strohl's Index or relation between tidal air and vital capacity (AC/CV), Monaldi's Index or relation between the complemental air and reserve air (AC/Ar), Ventilation Index or relation between tidal air and frequency (AC/Fr).

D. Constitutional Indices: Dupont's Index or relation between vital capacity and weight (CV/P), Stature Index or relation between vital capacity and length (CV/L), Spehl's Index or relation between vital capacity, weight and length (CV.P/L), Surface Index or relation between vital capacity and surface area of the body (CV/S).

E. Coefficient of oxygen absorption ($Cf.O_2$).

F. Coefficient of CO_2 elimination ($Cf.\ CO_2$).

G. Measurement of alveolar CO_2 and alveolar tension of CO_2.

H. Respiratory Quotient (R.Q.) CO_2/O_2; Basal Metabolism (B.M.).

I. Duration of time of inspiratory and expiratory apnœa.

II. Functional Tests of Cardio-Circulatory System

A. Static dynamic tests, *i.e.* Sphygmomanometry in the following positions: horizontal, vertical, after five deep flexor movements on the lower extremities, after five minutes of rest and the contemporaneous registration of the pulse and respiration per minute. Pulse and respiration ratio.

B. Bilateral Phylebomanometry without applying the tourniquet.

C. Sphygmogram and Phlebogram.

III. Respiratory Mechanism

Pneumograms, simultaneously bilateral and homologous points of the thorax, registered with the Baglioni Thoracopneumograph (according to Monaldi's scheme).

1. *Parasternal Line* (a) II intercostal space, (b) IV intercostal space.

2. *Midclavicular Line* (a) Supraclavicular fossa (b) II intercostal space, (c) IV intercostal space, (d) VI intercostal space.

3. *Anterior Axillary Line* (a) Mohrenheim's fossa, (b) III intercostal space, (c) V intercostal space, (d) VII intercostal space.

4. *Midaxillary Line* (a) Cono axillary, (b) IV intercostal space, (c) VI intercostal space.

5. *Posterior Axillary Line* (a) VI intercostal space, (b) VIII intercostal space.

6. *Posteriorly* (a) Fossa Supraspinosa, (b) M. Trapezius.

It was in the hope of further clarifying the general problem implied above that the investigations reported in the following pages were undertaken:

CASES

CASE No. I:

P. Vito. Age 28 years, Weight 65 Kg., Height 165 Cm., Surface area of the body M^2 1·70.

Diagnosis:—Multiple Bronchiectasis of the left lung with homolateral displacement of Mediastinum.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions	Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.) ...	125	115	130	120
Diastolic (Mn.) ...	75	60	75	65
Pulse Pressure (Pd.) ...	50	55	55	55
Pulse	100	114	108	90
Respiration ...	22	20	24	20
Ratio P/R. ...	4·5	5·7	4·5	4·5

Venous Pressure (R) 11, Venous Pressure (L) 20.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity (C.V.)—2600 c.c.
Tidal Air (A.C.)—600.
Complemental Air (A.C.)—1000.
Reserve or Supplemental Air (Ar.)—1000.
Pulmonary Ventilation—13200 c.c.
Inspiratory Apnœa—30″.
Expiratory Apnœa—20″.
CO_2 Alveolar Tension—5·3% = 35·50 mm. Hg.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·23.
Monaldi's Index—AC/Ar = 1.
Frequency Index—AC/Fr = 1.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 40.
Stature Index—CV/L = 15.
Spehl's Index—CV × P/L = 847.
Surface Index—CV/S = 1500.

(P = Weight; L = Height, S = Surface)

CASE No. II:

B. Leopoldo. Age 39 years, Weight 66 Kg., Height 173 Cm., Surface area of the body M^2 1·78.

Diagnosis:—Healed pulmonary tuberculosis of the left lung. Treated with total Antero-lateral Thoracoplasty and Phrenic exairesis. Stable healing of the lesions with homolateral retraction of the mediastinum.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE

Positions	Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.) ...	110	10[illegible]	115	110
Diastolic (Mn.) ...	70	70	80	70
Pulse Pressure (Pd.) ...	40	30	35	40
Pulse	80	88	100	86
Respiration ...	22	28	33	24
Ratio P/R ...	3·6	3	3	3·6

Venous Pressure (R) 9, Venous Pressure (L) 11.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—2000 c.c.
Tidal Air—550.
Complemental Air—800.
Reserve or Supplemental Air—650.
Pulmonary Ventilation—12100.
Inspiratory Apnœa—60″.
Expiratory Apnœa—40″.
CO_2 Alveolar Tension—6·5% = 43·65 mm. Hg.
Coefficient of Oxygen Absorption—341.
Coefficient of Carbon Dioxide Elimination—258
Respiratory Quotient—0·75.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·22.
Monaldi's Index—AC/Ar = 1·23.
Frequency Index—AC/Fr = 25.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 27.
Stature Index—CV/L = 11.
Spehl's Index—CV × P/L = 762.
Surface Index—CV/S = 1000.

(P = Weight, L = Height.)

CASE No. III:

(8-9-36) B. Marino. Age 48 years, Weight 61 Kg., Height 172 Cm., Surface area of the body M^2 1·70.

Diagnosis:—Left Pulmonary Sclerosis with Homolateral displacement of Mediastinum.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions	Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.) ...	130	130	135	130
Diastolic (Mn.) ...	65	70	80	75
Pulse Pressure (Pd.) ...	65	60	55	55
Pulse	76	80	82	76
Respiration ...	26	26	28	26
Ratio P/R ...	2	3	2·9	2

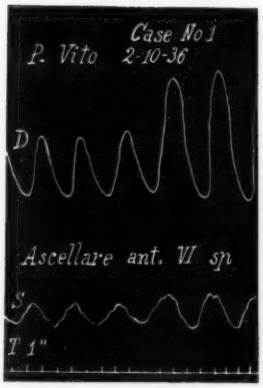

Fig. 1A.

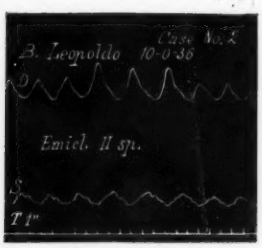

Fig. 2A.

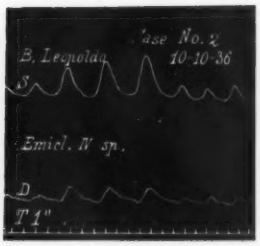

Fig. 2B.

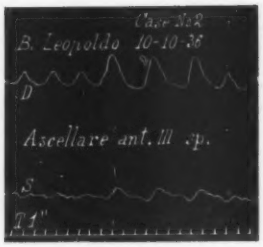

Fig. 2C.

Fig. 1A. The pneumographic examination shows on the left hemithorax a marked diminution of the pneumograms, especially in the points of the middle thorax. (Case No. I).

Figs. 2A, 2B, 2C. The pneumographic examination shows on the left subclavicular region the presence of marked paradoxical movements (*celarium compensi* of Morelli). The pneumogram curves on the left are reduced in amplitude especially in eupnea; towards the basal regions the pneumograms are irregular and there is more notable reduction of the amplitude. (Case No. II).

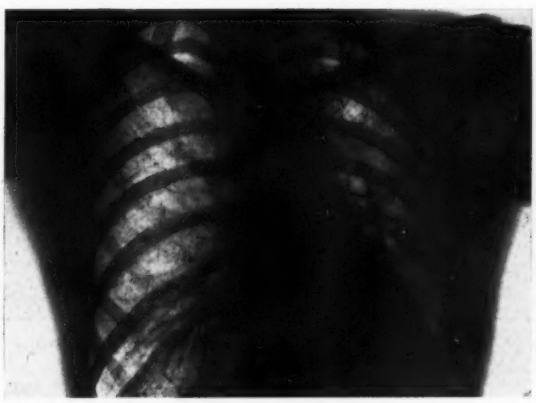

Fig. 1B.

Fig. 2D.

Fig. 1B. The radiogram shows a reduction of the left pulmonary area. On the left side a uniform opacity is noted on the inferior part. The mediastinum appears notably drawn towards the left. (Case No. I).

Fig. 2D. Left pulmonary area reduced. Hemi-diaphragm lifted cupoliform or trough shaped. The absence of the costal segments from the first to the seventh rib. In the sub-clavicular region, small, well circumscribed zones of opacity corresponding to the tuberculous lesions which are either calcified or fibrosed. The mediastinum is drawn towards the left especially in the upper position. (Case No. II).

Fig. 3.

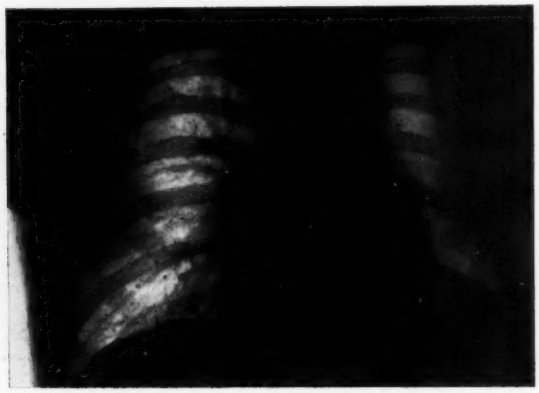

Fig. 5B.

Fig. 3. Pulmonary area very much reduced in volume with numerous scattered opaque traces and dense nodular shadows with clean cut limits. The mediastinum appreciably drawn towards the left. (Case No. III).

Fig. 5B. Marked reduction of the left pulmonary area. Left hemi-diaphragm lifted at cupola. Uniform opacity of the superior third. Absence of the anterior costal segments of the first three ribs. The mediastinum drawn towards the left. (Case No. VI).

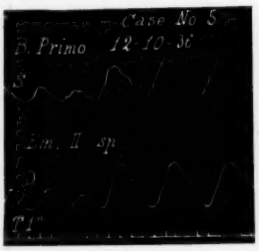

Fig. 4A.

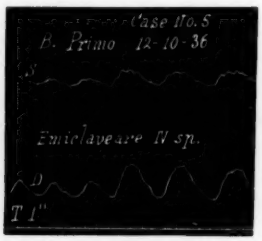

Fig. 4B.

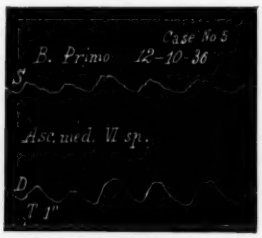

Fig. 4C.

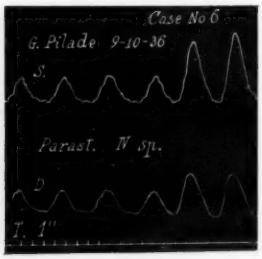

Fig. 5A.

Figs. 4A, 4B, 4C. The pneumographic examination reveals on the left hemithorax a slight reduction of the amplitude of the pneumograms which conserve their course and are also more definite in their phases. (Case No. V).

Fig. 5A. The pneumographic examination shows the presence of a paradoxical movement *(relarium compensi)* on the left corresponding to the points of the sub-clavicular fossa ; taking as a whole there is a slight reduction of the amplitude of the pneumograms, more evident towards the basal region. (Case No. VI).

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Venous Pressure (R) 10, Venous Pressure (L) 16.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—2700 c.c.
Tidal Air—500.
Complemental Air—1200.
Reserve or Supplemental Air—1000.
Pulmonary Ventilation—13000.
Inspiratory Apnœa—40″.
Expiratory Apnœa—30″.
CO_2 Alveolar Tension—6·3% = 42·60 m.m. Hg.
Coefficient of Oxygen Absorption—241.
Coefficient of Carbon Dioxide Elimination—168.
Respiratory Quotient—0·70.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·17.
Monaldi's Index—AC/Ar = 1·2.
Frequency Index—AC/Fr = 15.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 44.
Stature Index—CV/L = 15.
Spehl's Index—CV × P/L = 1090.
Surface Index—CV/S = 1500.
(P = Weight, L = Height.)

CASE NO. IV:

(8-9-36) M. Salvatore. Age 26 years, Weight 61 Kg., Height 166 Cm., Surface area of the body M^2 1·68.

Diagnosis:—Left pulmonary tuberculosis, treated with total Antero-lateral Thoracoplasty and Phrenic exairesis. Stable healing of the lesions with slight displacement of mediastinum towards the left side.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions	Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.) ...	140	125	130	125
Diastolic (Mn.) ...	90	85	90	90
Pulse Pressure (Pd.) ...	50	30	40	35
Pulse	92	94	100	75
Respiration ...	20	18	22	16
Ratio P/R ...	4·6	3·2	4·5	4·6

Venous Pressure (R) 10, Venous Pressure (L) 15.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—2000 c.c.
Tidal Air—500.
Complemental Air—900.
Reserve or Supplemental Air—600.
Pulmonary Ventilation—10000.
Inspiratory Apnœa—40″.
Expiratory Apnœa—30″.
Co_2 Alveolar Tension—6·2% = 42·60 mm. Hg.
Coefficient of Oxygen Absorption—288.
Coefficient of Carbon Dioxide Elimination—196.
Respiratory Quotient—0·70.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·25.
Monaldi's Index—AC/Ar = 1·5.
Frequency Index—AC/Fr = 25.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 32.
Stature Index—CV/L = 12.
Spehl's Index—CV × P/L = 735.
Surface Index—CV/S = 1200.
(P = Weight, L = Height.)

CASE NO. V:

(6-9-36) B. Primo. Age 24 years, Weight 70 Kg., Height 165 Cm., Surface area of the body M^2 1·80.

Diagnosis:—Multiple bronchiectasis of the left lung with marked displacement of Mediastinum (Homolateral).

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions	Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.) ...	150	135	155	150
Diastolic (Mn.) ...	80	70	90	80
Pulse Pressure (Pd.) ...	70	65	65	70
Pulse	80	88	88	80
Respiration ...	20	24	26	20
Ratio P/R ...	4	3	3·6	4

Venous Pressure (R) 10, Venous Pressure (L) 16.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—2700 c.c.
Tidal Air—600.
Complemental Air—1300.
Reserve or Supplemental Air—800.
Pulmonary Ventilation—12000.
Coefficient of Oxygen Absorption—333.
Coefficient of Carbon Dioxide Elimination—250.
Respiratory Quotient—0·75.
Co_2 Alveolar Tension—7·1% = 51·12 mm. Hg.
Inspiratory Apnœa—55″
Expiratory Apnœa—35″.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·22.
Monaldi's Index—AC/Ar = 16.
Index of Pulmonary Ventilation = 30.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 38.
Stature Index—CV/L = 16.
Spehl's Index—CV × P/L = 1146.
Surface Index—CV/S = 1500.
(P = Weight, L = Height.)

CASE NO. VI:

G. Pilade. Age 42 years. Weight 65 Kg., Height 164 Cm., Surface area of the body M^2 1·74.

Diagnosis:—Past Pulmonary Tuberculosis of the left lung, treated with Elastic Antero-lateral Thoracoplasty (Superior Type) and Phrenic exairesis. Stable healing of the pulmonary lesions with slight displacement of the mediastinum towards the left.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions		Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.)	...	120	140	145	135
Diastolic (Mn.)	...	90	110	110	105
Pulse Pressure (Pd.)	...	30	30	35	30
Pulse ...	...	86	96	104	90
Respiration	...	20	22	24	20
Ratio P/R	...	4·3	4·36	4·33	4·5

Venous Pressure (R) 16, Venous Pressure (L) 16.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—1800 c.c.
Tidal Air—500.
Complemental Air—670.
Reserve or Supplemental Air—630.
Pulmonary Ventilation—12000.
Inspiratory Apnœa—60″.
Expiratory Apnœa—40″.
Co_2 Alveolar Tension—5·9% = 39·36 mm. Hg.
Coefficient of Oxygen Absorption—258.
Coefficient of Carbon Dioxide Elimination—186.
Respiratory Quotient—0·71.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·27.
Monaldi's Index—AC/Ar = 1·06.
Index of Pulmonary Ventilation—AC/Fr = 25.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 27.
Stature Index—CV/L = 1000.
Spehl's Index—CV × P/L = 713.
Surface Index—CV/S = 1034.
(P = Weight, L = Height.)

CASE NO. VII:

(10-10-36) C. Umberto. Age 22 years, Weight 56 Kg., Height 169 Cm., Surface area of the body M^2 1·64.

Diagnosis:—Past Pulmonary Tuberculosis of the left lung, treated with artificial pneumothorax. Complicated with Empyema which was treated with the operation of Schede. Lambert Plombage and Phrenic exairesis. Stable healing of the pulmonary lesions with retraction of the Mediastinum on the left side.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions		Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.)	...	110	110	115	100
Diastolic (Mn.)	...	65	70	75	60
Pulse Pressure (Pd.)	...	45	40	40	40
Pulse ...	...	75	100	100	75
Respiration	...	20	22	28	30
Ratio P/R	...	3·7	4	3·6	2·5

Venous Pressure (R) 10, Venous Pressure (L) 16.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—1900 c.c.
Tidal Air—400.
Complemental Air—800.
Reserve or Supplemental Air—700.
Pulmonary Ventilation—8000.
Inspiratory Apnœa—50″.
Expiratory Apnœa—30″.
CO_2 Alveolar Tension—6·8% = 48·62 mm. Hg.
Coefficient of Oxygen Absorption—350.
Coefficient of Carbon Dioxide Elimination—308.
Respiratory Quotient—0·80.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·21.
Monaldi's Index—AC/Ar = 1·14.
Frequency Index—AC/Fr = 20.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 33.
Stature Index—CV/L = 11·50.
Spehl's Index—CV × P/L = 713.
Surface Index—CV/S = 1159.
(P = Weight, L = Height.)

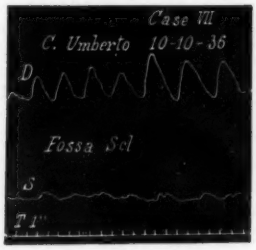

Fig. 6A.

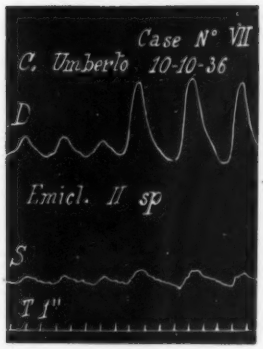

Fig. 6B.

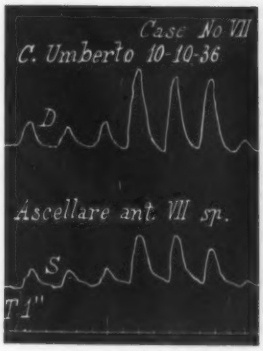

Fig. 6C.

Figs. 6A, 6B, 6C. The pneumographic examination shows on the left a notable diminution in the amplitudes of the pneumograms in eupnea as in the forced and deep respiration, marked on the superior half of the hemithorax, in which the pneumograms are also noticeably deformed. Going instead towards the basal regions the pneumograms increase in amplitude and acquire a regular course and present themselves sufficiently defined in their phases. (Case No. VII).

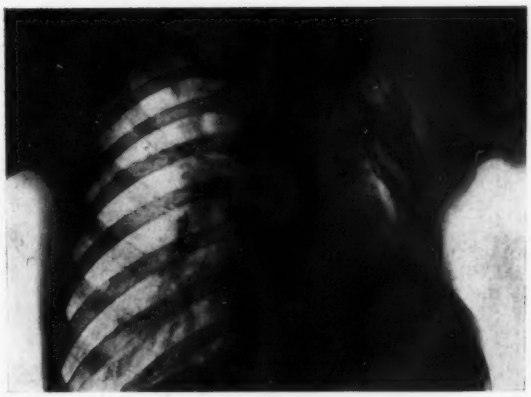

Fig. 6D.

Fig. 7.

Fig. 6. D. Left hemithorax notably reduced. Ample costal resections antero-laterly and posteriorly. Dense opacity of the apex. The mediastinum notably drawn towards the left. (Case No. VII).

Fig. 7. Right pulmonary area restricted. Diffuse opacity at the base with dense circumscribed shadows. The mediastinum is drawn towards the right. (Case No. VIII).

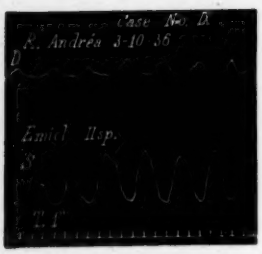

Fig. 8A.

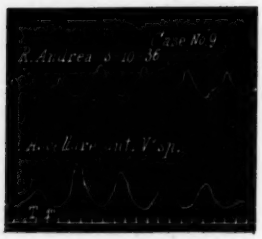

Fig. 8B.

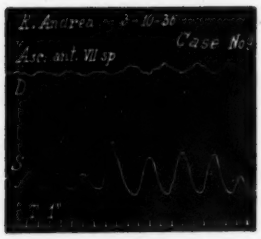

Fig. 8C.

Figs. 8A, 8B, 8C. The pneumographic examination shows a discrete diminution of the amplitude of the pneumograms but above all there is noticeably the presence of the paradoxical movement in the antero-lateral region, in the points, i. e. the points which correspond to the *Dominant Lines* of Monaldy and upon which there was performed an antero-lateral thoracoplastic operation. (Case No. IX).

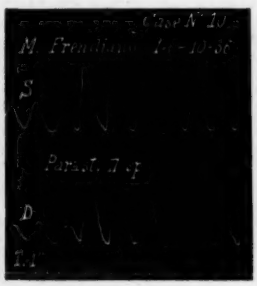

Fig. 9A.

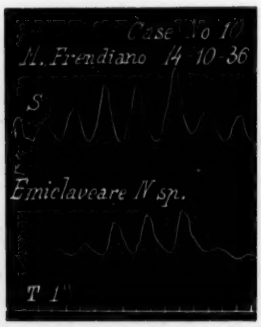

Fig. 9B.

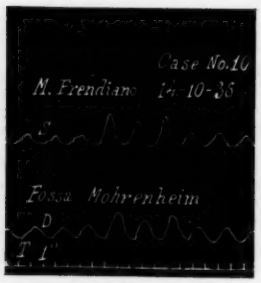

Fig. 9C.

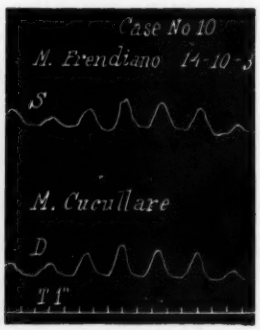

Fig. 9D.

Figs. 9A, 9B, 9C, 9D. The pneumographs do not show differences which can be noticed in the amplitude and course of the pneumograms between the two sides of the superior halves of the hemithoraxes. While in the inferior half there is a slight reduction of the amplitude on the right only. (Case No. X).

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CASE No. VIII:

(6-9-36) B. Ferruccio. Age 51 years, Weight 58 Kg., Height 165 Cm., Surface area of the body M^2 1·70.

Diagnosis:—Aftermaths of pleurisy with Bacillar Bronchiectasis on the right side with homolateral displacement of the Mediastinum.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions	Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.) ...	130	120	135	120
Diastolic (Mn.) ...	80	80	80	70
Pulse Pressure (Pd.) ...	50	40	55	50
Pulse	80	72	76	64
Respiration ...	34	28	30	32
Ratio P/R ...	2·3	2·5	2·5	2

Venous Pressure (R) 13, Venous Pressure (L) 12.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—2500 c.c.
Tidal Air—500.
Complemental Air—1200.
Reserve or Supplemental Air—800.
Pulmonary Ventilation—17000.
Inspiratory Apnœa—40″.
Expiratory Apnœa—30″.
Co_2 Alveolar Tension—6·3% = 42·60 mm. Hg.
Coefficient of Oxygen Absorption—(?)
Coefficient of Carbon Dioxide Elimination—(?)
Respiratory Quotient—(?)

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·2.
Monaldi's Index—AC/Ar = 1·5.
Frequency Index—AC/Fr = 14.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 43.
Stature Index—CV/L = 15.
Spehl's Index—CV × P/L = 878.
Surface Index—CV/S = 1400.
(P = Weight, L = Height.)

CASE No. IX:

(12-9-36) R. Andrea. Age 21 years, Weight 59 Kg., Height 170 Cm., Surface area of the body M^2 1·68.

Diagnosis:—Past Pulmonary Tuberculosis on the right, treated with Elastic Antero-lateral Thoracoplasty (Total and Phrenic exairesis). Stable healing of the pulmonary lesions with slight retraction of the Mediastinum towards the right side.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions	Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.) ...	140	140	150	140
Diastolic (Mn.) ...	95	100	110	100
Pulse Pressure (Pd.) ...	45	40	40	40
Pulse ...	75	90	90	75
Respiration ...	16	17	22	20
Ratio P/R ...	4·6	5·2	4	3·7

Venous Pressure (R) 10, Venous Pressure (L) 9.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—2900 c.c.
Tidal Air—700.
Complemental Air—1200.
Reserve or Supplemental Air—1000.
Pulmonary Ventilation—11200.
Inspiratory Apnœa—60″.
Expiratory Apnœa—40″.
Co_2 Alveolar Tension—7% = 56·80 mm. Hg.
Coefficient of Oxygen Absorption—253.
Coefficient of Carbon Dioxide Elimination—(?)
Respiratory Quotient—0·78.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·24.
Monaldi's Index—AC/Ar = 1·2.
Frequency Index—AC/Fr = 43.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 48.
Stature Index—CV/L = 17.
Spehl's Index—CV × P/L = 1006.
Surface Index—CV/S = 1700.
(P = Weight, L = Height.)

CASE No. X:

M. Frendiano. Age 22 years, Weight 73 Kg., Height 172 Cm., Surface area of the body M^2 1·86.

Diagnosis:—Carnification of the right lung with homolateral retraction of the Mediastinum.

CARDIO-CIRCULATORY FUNCTIONAL TESTS

ARTERIAL PRESSURE:

Positions	Horizontal (Lying down)	Vertical (Sitting)	After 5 deep flexor movements on the lower extremities	After 5 minutes of rest
Systolic (Max.) ...	150	150	165	155
Diastolic (Mn.) ...	90	100	110	100
Pulse Pressure (Pd.) ...	60	50	55	55
Pulse ...	90	100	98	90
Respiration ...	20	36	32	30
Ratio P/R ...	4·5	2·7	3	3

Venous Pressure (R) 20, Venous Pressure (L) 13.

RESPIRATORY FUNCTIONAL TESTS

(A) SPIROMETRY:

Vital Capacity—2400 c.c.
Tidal Air—500.
Complemental Air—1000.
Reserve or Supplemental Air—700.
Pulmonary Ventilation—12000.
Inspiratory Apnœa—60″.
Expiratory Apnœa—40″.
Co_2 Alveolar Tension—5% = 35·50 mm. Hg.
Coefficient of Oxygen Absorption—308.
Coefficient of Carbon Dioxide Elimination—235.
Respiratory Quotient—0·72.

(B) RESPIRATORY INDICES:

Strohl's Index—AC/CV = 0·20.
Monaldi's Index—AC/Ar = 1·42.
Frequency Index—AC/Fr = 25.

(C) CONSTITUTIONAL INDICES:

Dupont's Index—CV/P = 32.
Stature Index—CV/L = 13.
Spehl's Index—CV × P/L = 1018.
Surface Index—CV/S = 1200.

(P = Weight, L = Height.)

The cases with static displacement of the mediastinum from the view point of pulmonary tuberculosis are ten in number, five of which followed bronchiectasis and sclerotic phenomena and five were the cases of advanced pulmonary tuberculosis, clinically cured after surgical operations. Of these ten cases, in seven the mediastinum was attracted to the left and in three to the right. It is to be observed that greater deviations were had in those of the cases not operated (Cases No. I, III, V, VIII and X) and that in case No. VII, where a demolitive operation of Schede had been performed.

All the patients are in good health, apyrexic and clinically cured of the pulmonary lesions. The sputum in all the cases is constantly negative. Practically, taking note of the limited requirements of sanatorial life, all the patients present well-balanced cardio-circulatory and respiratory functions. For these reasons these researches are of importance as they have been done in order to find some particular disequilibrium during the activity of the functional tests and in the details of the mechanism of the respiration and the circulation.

The facts that may be deduced from these protocols basing themselves upon physiological values and upon the theoretical and experimental premises, may be summed up as follows:

I. CARDIO-CIRCULATORY FUNCTIONS

The blood pressure in a state of rest oscillates: systolic from 150 to 100 and diastolic from 100 to 60 with pulse pressure varying from 70 to 30 and in the majority of cases about 50. As a whole there is nothing peculiar to be noted about these values.

The functional tests show only one case of hyposthenic reaction (Case No. IV), while all other cases show slight hypersthenic reactions with increase of the systolic pressure from 5 to 25 mm. of Hg.

Case No. IV showed a slight hyposphygmia while in other six cases (II, III, V, VII, IX, X) hyposphygmia was observed with diminution of pulse pressure from 5 to 10 mm. Hg. The other cases present hypersphygmic reaction with an increase of 5 mm. of Hg. in the differential pressure.

After five minutes of rest the sphygmomanometric data show a tendency to return to the original reading where a slight drop of the systolic pressure is usually observed while the diastolic remains at the values noted preceding the tests or it diminishes slightly.

The number of pulse beats during rest is about normal. It is accentuated more or less during the cardiac functional tests, but generally the values returned to the original number after five minutes of rest except in three cases where they decreased and in two cases where they slightly increased.

The cardio-respiratory ratio shows normal values in five cases (Cases No. IV, V, VI, IX and X), in the other five there are values below the normal because of the predominance of the respiratory over the cardiac activity.

The bilateral examination of the venous pressure is of particular interest in all the cases (except in case No. VI). It is increased on the side of the mediastinal displacement with differential values from 1 to 9 cm. of water and with prevalence of differential values of 4 to 5 cm. It must be noted that the contralateral venous pressure is normal in all the cases usually around the 10 to 12 cm. of water.

The case No. VI, in whom there is no difference between the two sides, is a patient treated with antero-lateral thoracoplasty and in whom the initial mediastinal displacement was notably corrected by the operation (as can be easily observed in many cases thus treated in this Institute) whence a perfect equilibrium of the above-mentioned values.

II. Respiratory Functions

The study of the respiratory function puts in evidence a reduction of the vital capacity which was easily foreseen considering the types of the patients that were studied. This reduction though notable in some as much as 2100 c.c., however, it did not give origin to particular respiratory disturbances. The current air oscillates between 400 to 600 c.c., the complementary air is always in greater quantity than the reserve air so that the Monaldi's ratio AC/Ar gives values superior to the unity (from 1·06 to 1·6).

The ventilation air is generally increased and this is more in relation to the increase of the respiratory frequency than that of the current air.

The other indices show a deficiency of their values in respect to the physiological values; this is in relation to the diminution of the vital capacity to which these indices are referred.

There are very different values in the index of respiratory ventilation and this is due to the fact that an increase of the vital capacity does not always correspond to a diminution of the respiratory frequency and *vice versa*. This is evidently dependent to the particular needs of the organism and they are wholly individual because they are the expressions of the functional limitation due to past disease or to the collapse-therapy methods which were applied.

The coefficient values of the absorption of oxygen and elimination of CO_2 are nearly normal. However, it is worthy to note that the respiratory quotient is almost below the normal.

Lastly, the alveolar tension of CO_2 gives values which oscillate slightly around the normal values. The periods of inspiratory and expiratory apnœa are reduced as compared to normal.

Pneumographic tracings show a distinct reduction of the curves, especially in eupnea on the sides where there is the displacement of the mediastinum. In cases No. II, VI, IX, there are paradoxical movements (Velarium Compensi of Morelli) on account of the operation of the elastic antero-lateral thoracoplasty which was performed in these cases. But this reduction in curves cannot be wholly responsible from the mediastinal displacement, as along with it there still exist passed pleurisy or other cured lesions which co-operate in the limitation of the parietal activity.

Discussion

The functional tests and clinical observations on the limited number of cases reported here, considered in connection with those various functions of the mediastinum reported in the literature permit us to note that all the cases which have been observed did not show clinically and in the state of rest particular cardiac or respiratory disfunctional syndromes.

As a whole, the functional tests have shown moderate alterations in the general conditions though permanent alterations in the cardiac activity and in the respiratory functions. However, it must be noted that the deficiencies which were observed, do not reach the degree of a real disequilibrium, but instead show a tendency to compensate which in the particular case of the sphygmomanometry is expressed by a nearing to the initial values of those alterated during the dynamic tests.

On the other hand, a general observation must be made concerning the entity of the mediastinal displacement which is not in relation to the degree of the functional alterations—which may be only slightly alterated with marked displacements—when for intrinsic parietal and pulmonary conditions a new equilibrium between the two hemithoraxes has been able to be reached with the resulting regularisation of the detensive endomediastinal state and thus, of the various activities of this organ.

This fact explains how it is possible to find functional alterations in patients in whom the mediastinum is in the normal position but with abnormal pathological pulmonary conditions; these conditions exercise an influence through the pleuric pressures on

the mediastinum and fix it so as not to change its position even though its regular activities are modified.

This fact, though it diminishes the value (in a general way) of the radiological study of the mediastinal displacements, puts forth all the importance of the functional exploration which in each case is able to clarify the disequilibrium of its various manifestations or nullify, though not completely, the importance of the displacement in so far as functional effects are concerned.

This explains sufficiently how, in a homogeneous group of patients as that which are reported here, may be found the data which cannot be compared to each other. Every patient has a characteristic type of mediastinal activity which is not so much in relation with the displacement as with the detensive state of the organ, and hence with the lung and parietal condition.

Conclusion

As a conclusion it can be said that the mediastinal displacements, in patients without active pulmonary lesions, disturb the cardio-circulatory and parietal mechanical functional equilibrium in different degrees. In the cases reported here, never have such disequilibrium been reached so as not to be able to be compensated in a satisfactory manner at least in so far as the limited needs of the tests which were done, are concerned.

The most distinct modifications are to be observed in the respiratory activity and to these evidently contribute the pulmonary state especially for the limitation of the values of the respiratory volume.

The cardio-circulatory activity, however, is that which can be best defined as the entity of the disturbance especially when it concerns the compensation of the sphygmomanometric values after the alterations of these values and the bilateral venous pressure which is homolaterally increased in almost all the cases and in different degrees according to the concepts that have been described above.

The respiratory mechanism which shows signs of limitation of the homolateral parietal activity especially for the middle thoracic regions, is for this reason influenced by the conditions of pulmonary parenchyma or by the past operations. To this then, as has been said, must be given limited value.

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LABORATORY DIAGNOSIS OF GONORRHŒA IN THE FEMALE

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Diagnosis of gonorrhœa in the female, especially in chronic stages, is important as well as difficult. Important because if missed, it subsequently proves very harmful to the patient on account of its complications. Difficult because of its indistinguishability from the varied flora which bear a close resemblance to the micro-organism causing the disease.

It is my purpose in this article to discuss at length the criteria on which we can depend to make a reasonably sure diagnosis of the malady.

Both the pathologist and the gynæcologist have placed undue confidence in the Gram stain in the identification of the organism. Perhaps the gynæcologist in this country, who relies vaguely on the clinical symptoms and history, plus the finding of a Gram negative intracellular diplococcus in the smears from the cervix, has been responsible for the erroneous diagnosis in so many cases.

The laboratory workers have not given the matter due attention. The clinical worker, though dissatisfied with the situation, could do little or nothing to clarify it. One of the local gynæcologists, who had the courtesy to send me a good deal of material for investigation, often found fault on clinical grounds with the laboratory reports so long as I followed the routine practice of examining cervical smears and then reported on them in the stereotyped fashion " Gram negative diplococci morphologically resembling gonococci present (or absent)." In the first half of the year 1934 I find in my record that no less than 50 per cent. of the clinically suspected cases were labelled as negative in the laboratory after a thorough search of more than an hour in each case.

Gram staining was the usual method upon which we based our diagnosis. In the case of thick smears one could not completely decolorise even in twenty minutes, using ordinary absolute alcohol as a decolorising fluid. I then took to a stronger decolorising fluid, *i.e.*, a mixture of acetone and alcohol (25 per cent. former and 75 per cent. latter). But then one was treading on no less dangerous ground because one was afraid one might not have over-decolorised the smear. The control smears were not always available to make a comparison.

The variability of the Gram reaction associated with chances of errors in staining technique lead one to doubt its utility as a means of identifying the gonococcus except in cases where the typical organism may be equally easily recognisable after staining with methylene blue or dilute carbol fuchsin. In fact, I always prefer these simple stains to Gram stain in the field of gynæcological diagnosis.

The committee of bacteriological technique of the society of American bacteriologists reported clearly on the variability of Gram reaction. Churchman showed that with some organisms the Gram reaction is " stable " and with others " unstable." Then Stearn and Stearn laid great stress on the fact that pH 4·0 is necessary for differentiating positives from negatives.

Ramsin and Miloch veitch have done much in shaking our confidence in the Gram reaction in gynæcological practice. They observed in culturing the organisms that some do not take the Gram stain, others take it, and a few others form macrogonococci. They could change the appearance of the organism and its tinctorial properties by placing it in contact with gonococcus filtrate, grown in broth or ascitic fluid. They proved that they could transform some Gram positive organisms to Gram negative. By the action of protargol and by heating at 42° C. for two hours, they changed the gonococcus to Gram positive diplococcus. Kandyaba also succeeded in isolating a race of Gram positive diplococci from a pure culture of gonococci *in vitro*, heated to 40°C.

Various workers have described modifications in morphology of gonococci. La Sodier and J. Verge noted macrogonococci. A Cohn observed elongated forms. Raven recently described three types of the gonococci. The type II colonies of Raven contained Gram positive or polar body diplococci. Type III contained small fusiform, Gram negative granular bacilli. Type II and type III which arose from type-I sometimes reverted back to the parent form. Raven also met with morphological variants such as beaded rods,

dumb-bell shapes, ring forms, globoid phantom forms and tiny Gram negative micrococci.

In the past the susceptibility of the gonococcus to pathogenic degradation as well as to evolution in morphology and biology had not been generally recognised and hence the large number of mistakes in the identification of these organisms in chronic cases. The above mentioned facts clearly suggest that the atypical gonococcus cannot be identified by the Gram reaction. Because, gonococcus under similar conditions as are produced artificially outside the body to bring about a change in its shape and staining reaction, is liable to the same changes.

I have sometimes used the double staining method with thionin-picric acid which was elaborated by Vleszcynski and later modified by Kindburg. The cell nuclei appear red, the leucocyte nuclei brown red, the gonococci yellowish brown and of sepia shade and all the other bacteria red. The gonococci are electively stained. I certainly prefer this staining method to Gram but I do not claim that it is not capable of giving rise to the discrepancies which I have referred to above in connection with Gram staining. However this much is certain that even a degenerated gonococcus remains dark brown and of sepia shade.

Good deal of stress is laid on the intracellular character of the gonococci in the smear examination. Personally I believe that if we are going to rely too much upon this we are certainly going to lose sight of many of our chronic cases,—because in the chronic stage the organism may be extracellular. Sometimes staphylococci and streptococci may be intracellular and because of degeneration may also give Gram negative reaction. They depend on the presence of a vacoule round about such cocci. Ford is of the opinion that sometimes micrococcus catarrhalis which resembles gonococcus morphologically may also be intracellular. This organism however is not very often found in the female genital tract.

In very early cases of the acute stage also the organisms are extracellular. So that the intracellular character of the gonococcus is not the criterion on which we can pin our faith.

I do not mean to convey by all this that smear examination should be discarded. No, in 29 of my cases in which both cultural and smear examinations were done there were 3 cases in which smears alone were positive.

I would, however, certainly like to impress that much of the success in the smear examination depends upon the mode of removal of the pathological material from the cervix. Personally I always find better results with one that is recommended by Pelouze.

It is no use making a smear from the cervical plug of mucus. Gonococci cannot live in it because it is highly alkaline. It should be wiped carefully from the canal with one or two applicators. The cervix should then be held firmly in a speculum blade and given a thorough kneading, after which a cotton wrapped applicator should be passed into the cervical canal and quite strenuously rubbed into the mucous membrane. In this way the secretion of the glands in which probably the gonococci lurk is forced out.

There are sites other than cervix from which it is essential to make the smears in case one is keen to exclude the false negative results.

In this connection I would like to make a special reference to the examination of smears from the post-vaginal fornix. It has been believed that gonococci cannot survive in the adult vagina. This was perhaps due to the failure of the bacteriologist to demonstrate the organisms. Because clinically we almost always find changes in the vaginal mucous membrane associated with acute or chronic gonococcal infection of the cervix. The gonococcus may and often does persist in the vagina and it is unaffected by the acidity of the secretion or by the prevalence of secondary organisms. Gurd was perhaps the first worker to have frequently cultured gonococci from vaginal swabs. In the opinion of Penrose the vaginal fornices and especially the posterior vaginal fornix are the sites where a gonococcal infection tends to become localised.

Ivanov challenges the generally accepted theory that acute gonorrhœal vaginitis occurs only in children, in women who have passed the menopause, in others with ovaries removed and so on, and that it is not observed in women with normal menstruation. In biopsic examination of more than 200 cases of acute and chronic gonorrhœa he observed that in practically all the cases the vaginal mucosa presented a marked inflammation and that the presence of gonococci was easily revealed not only in the superficial layers of mucosa but also deep within the epithelial and subepithelial tissues. Phagocytosis of gonococci was also revealed in the subepithelial connective tissue. Ivanov concluded that acute gonorrhœal vaginitis is a primary lesion following an infection of the vaginal mucosa produced directly by coitus and that it does not depend on a discharge from the cervix. The

clinical symptoms of acute vaginitis may disappear in a short time but the vaginitis itself persists.

Thus King and Neville Mascall in 33·3 per cent. of their 162 cases isolated typical gonococci by culture method from the vaginal fornices in the chronic stage of the disease. They have definitely shown that the vaginal fluid could not be contaminated by the infected cervical discharge because in 56 of their cases vaginal plates only were positive. The cervical and urethral smears and cultures were negative. They have concluded from clinical and laboratory examinations that the conspicuous clinical differences seen in the vaginal infections of children and young unmarried women as opposed to multiparæ and others in whom the mucous membrane has been hardened is merely a question of extent and severity of infection. In the former types the whole length of the vagina is involved; in the latter, the infection usually becomes limited to the vaginal fornices. They could isolate the gonococcus by their plate method from 28 severe cases of generalised type of vaginitis when repeated tests from other sites had proved negative. These cases were originally labelled as " non-specific." They are of the opinion that the infection of the vagina due primarily to organisms other than gonococcus is rather very uncommon.

In the middle of the last year after the publication of King and Neville Mascall's article I suggested to some of my gynæcologist colleagues to send smears from post-vaginal fornix in every case of cervical smear examination. During the course of these nine months I have received smears from 33 cases of both the cervix and the post-vaginal fornix.

Result of the examinations was as follows:—

10—Negative.
18—Positive from the cervix.
5—Positive from the post-vaginal fornix.
3—Positive in the vaginal fornix but negative in the cervix.

I would have labelled as negative the three cases in which smears from the vagina only were positive if I had not examined the vaginal smears. If cultural tests had been resorted to as suggested by King and Neville Mascall, the number of positives might have increased still more.

Thus it is evident that smears from the post-vaginal fornix should be examined as a routine even though we cannot put up cultural test from the site of infection.

No search for gonococci would be complete so long as smears are not taken from the urethra and rectum as well. Mascall showed by the analysis of the results of his cases that 38·7 per cent. of them would have escaped diagnosis if the urethræ had not been examined, whilst 34·6 per cent. would have escaped diagnosis if the urethra had been tested without the cervical smears.

Clements and Hughes recently showed that out of their 167 cases suffering from gonorrhœa of the genito-urinary passage, under tests of cure, 69 had gonococci in their rectal secretions. 15 of these 69 cases showed no gonococci in their cervices or urethræ. So that they would have labelled these cases as cured in case they had not examined the rectum. In 4·9 per cent. of their 69 positive cases smears only were positive. Cultures were negative. Hence the smear examination should not be ignored though culturing should be done.

Brunet and Salberg and Martin made similar observations from their clinics in America. If, as Burnet and Salberg believe, the urethra and cervix may be reinfected from this site, anorectal gonorrhœa must be regarded as the cause of recurrence of the disease so often in women. I hope that the gynæcologists in this country also will give their attention to rectal gonorrhœa.

These workers advocated the smear examination to the exclusion of cultural tests because of the difficulty in carrying them out.

For the preparation of a smear from the rectum apply an endoscope after dilating the anal sphincter with the fingers a little. Then put in a cotton swab and rub it against the interior wall of the rectum especially. Now prepare smears from the swab.

When examining vaginal smears from suspected cases in children I have always been on the look out to see whether they were cases of genuine gonococci or not. Boyd is of the opinion that Gram negative intracellular diplococci are normally present in the vaginal smears of children. And that many of these cases are not gonococcal. I examined vaginal smears from 26 normal children attending the out patient departments of the local hospital with their sick mothers. None of these smears showed pus cells at all. None of them showed diplococci (Gram negative or Gram positive). So that there is no question of the diplococci being normally present in the vagina of the children in this country. It is a strange coincidence that Gram positive diplococci resembling pneumococci which were absent in the

vaginal flora of London children as reported by Ernest A. Wood were also not met with in the smears of normal children in this country. Perhaps this is why we do not meet with cases of pneumococcal peritonitis in children very often in this country.

Before we finish up this discussion we must definitely settle the question whether we can depend upon smear examination alone for the diagnosis of our cases.

Clements and Hughes whilst working on rectal gonorrhœa found that 11·7 per cent. of their cases gave positive results on cultural tests only. These cases they would have missed if they had resorted to smear examination only.

King and Neville Mascall whilst working at their cases of gonorrhœal vaginitis in the adults found that 43·8% of their total positive cases showed gonococci by culturing only.

It should be noted that we cannot exclude by smear method alone those cases which show Gram negative diplococci which are not genuine gonococci.

Hamel, Schubert, Barbelion and Cohn met with organisms morphologically resembling gonococci under the microscope, in the discharges from the female genital tracts, but they were not true gonococci. Most recent expositions in this connection are those of Schubert and Beck, and of Mcleod *et al.*

McLeod *et al* discovered 6 types of diplococci from the female genital passage. Some of them would grow on ordinary agar, and others ferment maltose. They concluded that direct microscopic diagnosis, apart from failing to detect gonococci in some cases positive by culture, may also be responsible for a small number, probably 1-5 per cent. of false positives. Schubert and Beck on culturing the discharges of their cases found that staphylococci and streptococci which in the original smears appeared as Gram negative diplococci, are the most frequent source of error, and the coccobacillary forms of the colon bacillus and B. proteus likewise may be mistaken for gonococci.

On culturing discharges from a few of the little girls suffering from vulvovaginitis, I came across a case whose diplococci could be grown on ordinary agar and fermented both glucose and maltose. Evidently it was not gonococcus.

Thus we see the importance of cultural tests. In adults I find that my own positive results fall by 30 per cent. in chronic cases if cultural tests are not done. Moreover one never feels justified to label any case gonorrhœal unless one is on very sure grounds.

There is a belief amongst most medical men and women that gonococcus is an extremely delicate organism and can only be grown with great care by specialists of great repute. This is wrong. I believe there is nothing that any painstaking bacteriologist should be afraid of attempting.

King and Neville Mascall advised sucking up the purulent material with capillary pipettes and then spreading on a sloped plate. They sloped their plates so that excess of discharge might drain off to one side. Personally I believe this is a fancy of the workers. It depends very much upon one's experience of a particular method. I had the opportunity of making cultures from posterior vaginal fornices in a few cases. I did succeed in some of them just by taking loopfuls. The number of successes, however, might have increased if the pipette method had been used.

A host of media have been recommended by various workers. Many of these media work fairly satisfactorily but much depends on one's personal experience.

I do not, however, recommend media making use of hydrocele or ascitic fluid, as in this country it is rather a difficult problem to secure sterile fluid. This requires good deal of team work and unfortunately the medical profession in India has not so far taken to it.

Some of the well-known media without hydrocele or ascitic fluid are:—

1. Calf brain veal agar of Pelouze and Viteri.
2. Egg albumin medium elaborated by Price.
3. Ten per cent. pigeon blood agar as used at the Central Research Institute, Kasauli.

I have got almost no personal experience of Price's medium. I usually use calf brain veal agar. I prefer it to any other medium containing organic fluid because this medium can be autoclaved at the end.

Those containing organic fluids like 10% pigeon blood digest agar as used at the Central Research Institute, Kasauli, have the disadvantage of being more liable to contamination or the growth of mold. One need not cover up the tubes with wool soaked in perchloride of mercury lotion. Once the Pelouze's

medium in the tubes is autoclaved there is no need to finally test them for sterility before making use of them.

Moreover, the viability period as determined by Pelouze is from 3—6 weeks on his own medium unlike 20 days on pigeon blood agar as found out by Dr. Niranjan Singh.

At the close of the year 1934 I sent round an enquiry to some well-known institutions in India. Those who cared to reply, stated that they were not using this medium. In my own province the growth of gonococcus is regarded as a curiosity. So long as our workers do not make it a routine practice we can neither make diagnostic cultures nor develop the complement fixation test or the skin test which alone, I believe, can really suit our country.

The following are the steps in the preparation of the medium as given by Kolmer:

1. Pass 500 grams of calf brain through gauze into 500 c.c. of distilled water.
2. Place in a refrigerator for 24 hours.
3. Filter through cotton several times (Filtrate remains opaque).
4. Measure and to each 100 c.c. add 0·5 gram of acid sodium phosphate and one gram of peptone.
5. Add one part of this brain broth to 3 parts of 2·5 per cent. veal broth agar with the addition of 0·5 per cent. sodium chloride and 1 per cent. peptone.
6. Adjust to pH 7·8 which allows for a reduction of two points in autoclaving, as pH 7·6 is desired.
7. Tube: heat at 121°C. (15 pounds pressure) for thirty minutes, and slant.
8. Replace the cotton stoppers with sterile rubber corks to retain the water of condensation.

The medium can also be obtained ready made from Difco Laboratories in America in powdered form. Once working with this ready made medium I had a difficulty. It would not grow gonococci from a frankly purulent discharge on repeated attempts. Then I tested its pH. It was 8·0. I lowered it to pH 7·5. There was a growth within 24 hours. So the pH should be tested whenever there is any doubt.

I would now refer to the difficulty which every worker in the tropics will come across.

The presence of moisture in the tube (from the water of condensation) is necessary before we can get any growth worth the name. In the hot days of summer the moisture in the tube would not condense. A good part of it is absorbed by the cotton wool stoppers. If by chance one puts in any tube (6×5/8) more than five c.c. of the medium so that the upper end of the slope of the medium comes very near the cotton plug, the whole of the moisture would be taken up by the cotton wool plug. In order to get over this difficulty I always take care that more than 5 c.c. are not put in any tube. Secondly after placing the tubes on the slope I cover them up with a towel drenched with ice-cold water (care being taken that cotton plugs are left uncovered and not soiled with water). Then I go on pouring ice-cold water over the towel by wringing out of a sponge, till the agar in the tubes is solidified.

Rubber stoppers are fairly air tight to keep the moisture in for two or three months, but then one has to apply them after the tubes have been removed from the autoclave and solidified. There is a possibility of contamination during the time one is taking out the cotton plugs and applying the rubber stoppers. I therefore replace the tubes by screw capped bottles as suggested by Macartney, to preserve the moisture of the media.

I was afraid that this might not give a set back to the results because I had read a reference about Wilson's paper wherein he had shown the good effect of the rubber stoppers on the growth of Brucella Abortus because of the change in the carbon dioxide tension brought about by the rubber stoppers. Prof. G. S. Wilson recently in a personal communication to me mentioned that perhaps the good results claimed by Pelouze are due to the increased carbon dioxide tension brought out by rubber stoppers. No doubt it has been definitely shown by McLeod *et al* that 10 per cent. CO_2 is the most suitable atmosphere for the growth. But I find that my results, after I replaced the rubber stoppered tubes by screw capped bottles, were not in any way inferior to the previous ones. I now rather believe that I can keep the bottled medium for much longer time. I could successfully culture recently on bottles prepared in the beginning of the last cold weather (*i.e.*, 6 months after bottling).

Whenever there is any difficulty in the growth in any particular case I always prepare fresh medium because the fresh medium almost always conquers the difficulty.

Another difficulty that I came across in the diagnostic work in the females was that in this country they would not allow the male bacteriologist to remove the pathological material from the genital organs personally. Sometimes I had to stand behind the screen and the gynæcologist would surreptitiously supply me loopfuls of the discharge from the cervix or post vaginal fornix.

Contamination from the air was a frequent source of disturbance. Then I suggested to the local gynæcologists to supply me with swabs from the genital passages in the same way as we take from the throat in the case of diphtheria. But this would grow a large number of other organisms and not the gonococcus. I then suggested to them to spread the discharge on the slopes themselves. After a few failures the results were fairly satisfactory.

It would thus be realised that the cooperation of the gynæcologists is necessary before cultural method for diagnostic purposes can be applied in gynæcological practice in this country.

The results were always better in my own hands when I spread the discharges on the slopes in my own clinic, than in the out patient departments of the institutions. In these places there are no suitable rooms for cultural work. Moreover one could not rigidly enforce the condition necessary for avoiding contamination from the atmosphere or the adjacent body surfaces. Large number of colonies of staphylococci were the usual result in my own hands when cultures were made outside the clinic.

I thought of adding a suitable percentage of gentian violet and potassium tellurite to inhibit the growth of all Gram positive cocci and all Gram negative bacilli as used in the inhibitory selective culture medium for streptococci elaborated by Garrod in the St. Bart. Hospital. I have not so far been successful in this respect. I tried either high dilutions which did not inhibit either the Gram positive cocci or Gram negative bacilli. Lower dilutions used, on the other hand, inhibited both. This line of investigation has not been taken further by me.

In this connection McLeod of Leeds University informed me that gonococcus is a very sensitive organism and that it would not grow in the presence of these dyes.

Tulloch has mentioned the use of crystal violet in different dilutions for different strains. Clements and Hughes in their work on rectal gonorrhœa employed telluric acid and brilliant green as restrainers of the growth of bacillus coli. They also used a broth containing various quantities of highly potent anti B. coli serum.

It is definitely known that crystal violet is the most toxic of the violet dyes. Gentian violet is one of the least toxic of the violet dyes. There could be some advantage in its use over the crystal violet. We might be able to get over the difficulty of using various percentages of the dye for different strains.

I think if the bottled medium could be available from a central laboratory in a city, any general practitioner who possesses a platinum loop, a microscope and a simple stain (say dilute carbol fuchsin), can carry out the culture work for diagnostic purpose, at his clinic. He can use a thermos flask with a shape like that of a jug as his incubator. Or the bottles could be sent for incubation and identification of the organisms to the central station. The gonococcus is not likely to die in the transport. I had the opportunity to culture discharges from cases in the venereal department of the Mayo Hospital, Lahore, twice, to prepare antigen from various strains for the complement fixation test. Each time the tubes were put up in the incubator for five hours after I had cultured them there. The results were fairly satisfactory. Pelouze observed that gonococcus can live at 45 degree for half an hour and at O degree C for 24 hours. So the outlying dispensaries can easily send in their inoculated bottles to the central station carrying out diagnostic work.

The detection of the colonies has been much simplified by the introduction of oxidase reaction by Gordon and McLeod. 5 c.c. of one per cent. aqueous solution of tetramethyl-paraphenylene-diamine hydrochloride is allowed to run over a slope. The colonies of Gram negative diplococci almost immediately take up faint pink colour. In three minutes this deepens to a cerise shade, and the colonies are easily seen by the naked eye amongst those which are unaffected. Gradually the colour changes to red and then to reddish purple, finally ending, in about thirty minutes in an intense jet black.

Pseudo reactions are shown by brownish pink rather than pure pink and becoming in the end brownish black instead of jet black. False positive reactions can be obtained by micrococcus catarrhalis but this is not very often found in the female genital tract. Filiform type of B. coli as well as B. subtilis can also give pseudo reactions but they can easily be distinguished under the microscope by Gram reaction.

An expert may make an antigen from subcultures to titrate against a known anti-serum. Some workers like Gradwohl have made use of an indicator, bromocresal purple, and lævulose as a sugar fermentable by non-gonococcal colonies. This gives a yellow halo round about the colonies other than those of gonococcus. Personally I am not very much enamoured of it. Oxidase reaction as elaborated by Mcleod and Gordon is fairly distinct and rapid for identification purposes.

Then fermentation tests should be put up by an expert to finally make sure that the Gram negative diplococcus isolated is a genuine gonococcus.

This, however, does not finish up the story of the diagnosis of gonococcal infection in women. There are cases which we would surely miss in case we resort to smear and cultural tests only.

I take this opportunity to thank doctors Sushila Uttam Singh and H. K. Pall of the Hindu Ladies' Hospital, Amritsar, for sending me so much material for investigation and Doctor B. L. Kapoor and Mr. Kirpal Singh for translating German script for me. My thanks are also due to Doctor Harbhaja Singh, Venereologist, Mayo Hospital, Lahore, for his useful suggestions and placing all the facilities at my disposal for experimental work.

Summary

1. Gonococcus is liable to pathogenic degradation as well as to evolution in biology and morphology.

2. The variability of the Gram reaction associated with chances of errors in staining technique lead one to doubt its utility as a means of identifying the gonococcus. Simple stains are preferable to Gram in the field of gynæcological diagnosis.

3. Examination of smears is important because some cases are positive by smear examination only.

4. Gonococcal vaginitis is a definite entity in the adults. Smears should always be made from the post-vaginal fornix in addition to those from the urethra and cervix.

5. No search for gonococcus would be complete so long as smears are not prepared from the rectum.

6. Studied smears from 26 normal children never showed Gram negative diplococci in them.

7. Smear examination should always be supplemented by cultural tests.

8. The use of calf brain veal agar for cultural tests under tropical conditions is recommended.

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ORAL HYGIENE

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A few preliminary observations are necessary for the proper understanding of the importance of a clean mouth. All the food and drink that we take pass through the mouth as also part of the air breathed into the lungs. Therefore it is apparent that the oral cavity must be kept in as clean a condition as possible, otherwise the food and air may be contaminated during their passage through it. Also, if the mouth harbour pathogenic bacteria, whenever the person's general vitality is lowered due to any cause, there may be systemic or general infection through the blood or lymph channels. On account of the peculiar nature of the arrangement of the teeth with their interspaces, the lodgement of food particles and bacteria is facilitated, which latter lying undisturbed for a number of hours, particularly during sleep at night, with an abundance of pabulum surrounding them, will proliferate. By this increase in the bacterial flora of the mouth, if the lodged food particles be of a protein nature alkaline end products will be produced by fermentation and putrefaction leading to gingivitis, gingival "trough" formation and ultimately to pyorrhœa alveolaris. Whereas, if the adherent food debris consist of carbohydrates, *e.g.* following eating of sweets, the acid forming bacilli, particularly bacillus odontolyticus, types I and II will grow and produce lactic acid. This lactic acid will in course of time act upon the enamel of the teeth which is composed mainly of calcium and magnesium phosphates eroding it and making it rough, so that more food particles will tend to accumulate—establishing a vicious cycle, ultimately leading to dental caries.

These conditions of oral sepsis may affect the patients in more ways than one, *viz.*,—

(a) By direct septic infection to adjacent tissues, it may produce pharyngitis, tonsillitis, glossitis, etc.

(b) By producing remote infections, it may bring on cervical lymphadenitis, gastritis, gastroenteritis and such serious and fatal complications, like septic meningitis and cavernous sinus thrombosis.

(c) By inhalation of septic matter from the mouth, particularly during the administration of general anæsthetics, septic pneumonia may be produced.

(d) By septic absorption, pyæmia, septicæmia, sapræmia, septic anæmia, septic nephritis, neuritis, chronic rheumatism as also osteo-arthritis.

Besides these, various other lesions may also be produced, as all the factors that are necessary for the spread of infection are generally present in a dirty mouth, *viz*,—

(1) Presence of pyogenic bacteria in the mouth.

(2) Continuous subinfection through blood and lymph channels.

(3) General lowered vitality.

(4) Abraded and inflamed mucous membrane, facilitating penetration by micro-organisms of the deeper tissues.

On account of septic absorption from, say a large number of pockets full of pus, it is quite easy to imagine that a much more common and general involvement of body tissues may occur than for example from an infected nasal sinus—as also a general lowering of body vitality and continued general ill health. Hunter in his article on oral sepsis in the *B. M. J.*, 1904 holds the same view. There is an old Bengali saying "যার দাঁত ভাল তার ধাত ভাল।" This is proved by the observations of eminent internists and dental surgeons all over Europe and America where workers in big factories get the advantage of a properly equipped dental clinic attached to their concerns. Before the establishment of dental service to the employees, many more working days were lost for illnesses by the workers. In larger schools, where periodical examination of children's teeth and proper dental treatment by school dental clinics is a routine measure during recent times, the improvement in dental and general health of the children is remarkably manifest.

Now let us consider the means of attaining the desired result, *i.e.* a clean mouth.

I. Natural Means of Cleansing:

(1) The superficial layers of squamous epithelia of the mouth are being constantly infected with the dust and germ laden air and contaminated food and drinks. But they are shed off continuously carrying with them a large amount of bacteria and thus lessening the chances of deeper penetration of the tissues by the micro-organisms.

(2) The saliva aids in the process by its weak antiseptic properties (though it is denied by others) and by its weak alkalinity in partially neutralising the acids produced by fermentation, but mainly by its suction action helps to dislodge the food particles from the interstices and crevices of the teeth. The mouth while chewing forms practically a closed cavity, the salivary secretion is particularly active, the tongue movements are vigorous. The tongue rolls away a morsel of food, as it is being chewed, from the neighbourhood of the teeth, towards its dorsum thence to the pharynx—as a sort of inclined plane for the easier passage of the bolus of food to the gullet. This produces for the time being a partial vacuum within the mouth cavity and hence the saliva that is lying between the cheek and the labial surface of the teeth is drawn into the mouth cavity by a suction action and together with it, the minute food particles that are adhering to the interstices of the teeth. So, we find that in cases of lessened salivary secretion, *e.g.* in febrile states, in impairment of the motility of the lips and cheeks, *e.g.* in facial paralysis or in marked general asthenia or in increased viscosity of the saliva, *e.g.* in inflammatory states of the mouth—this hydro-dynamical action does not properly function leading to stagnation of food debris in the crevices and interstices of teeth, with the production of an unhygienic state of the mouth.

(3) The selection of a proper dietary cannot be too strongly emphasised. If a person chews sticky sweets part of the gelatinous carbohydrates like starch, dextrin and the saccharine viscid juice tend to adhere tenaciously, to the crevices and interstices of the teeth and will produce mannitic or viscous fermentation, as also lactic acid fermentation. So, these articles ought to be followed by slowly sipping some cleansing fluids like milk or water, etc. Then acid fruits like oranges or apples may be chewed which produce certain physico-chemical actions. When we masticate, say an apple, the acidity of the fruit produces a reflex stimulation of saliva which aids in the natural cleansing process, then the cellulose of the fruit has got a mechanical detergent effect upon the surfaces of the teeth, the flavour also is beneficial in aiding digestion apart from its value as an essential vitamin and mineral salts containing article of diet. When we take articles of food prepared from roller-milled fine flour, from which the outer layer of wheat containing the wheat germ and mineral salts and bran have been removed—the normal friction that is so necessary for the proper blood supply of the gums and mucous membrane of the mouth is lacking, as for example, when we take home-made "chapatis" prepared from coarse whole meal wheat flour. Our forefathers used to get an ounce of sugar from chewing a few feet of sugarcane, which exercised their jaw-bones and muscles and the teeth also whereas we partake the same amount in its purified state in about 1/20 of their time and without hardly if any exercise of the jaws—so, how can our masticatory apparatus remain in such efficient states as of yore. The perfection of culinary art with its sophisticated and hyper-flavoured foods and the demineralisation and denaturalisation of staple articles of diet, the absence of fruits and vegetables in proper quantities in our diet in their natural raw state, the too much dependence on cooked foods for the last 3 or 4 generations of so-called civilised people have, in course of time, tended to produce in offsprings of recent ages, an inefficient masticatory apparatus according to Lamarkian hypothesis of heredity. You may dose the pumy, rachitic hypocalcæmic child with maldeveloped teeth and jaws with any of the A and D vitamin-containing preparations in the market but, unless you select the child's diet with care and inculcate proper food habits, the results will be discouraging. If the child, say when it is one year old and a few of the deciduous teeth have erupted, is given a piece of crisp buttered toast and a piece of apple or some such food to gnaw and chew, it will not only help him to develop his jaws, but also assist in erupting the tiny teeth by pressure applied to the gums during mastication. Even if the teeth themselves are beautifully formed, unless they are arranged normally, it is not of much help to the individual. Because if the jaw is undeveloped, the relatively large teeth will be set in a relatively small jaw and hence we often see so much irregularity of teeth arrangement in a rickety child. The remedy to avoid such things is antenatal care. In expectant mothers whose health

is below par—give special attention to her diet—give her calcium and vitamins A and D-containing articles, if necessary. When the child is born, post-natal care is necessary for the proper development of teeth and jaws and maintenance of a clean mouth. Instead of rearing him on a soft pappy food alone, educate the mother as to the proper diet and food habits of her ward and when the child grows older, teach the child the rudiments of oral hygiene. We must remember that the teeth and jaws begin to ossify about the 5th month of intra-uterine life, so that, proper antenatal care is as important as after management of the child's dietary and food habits in producing a proper arrangement and conformity of the teeth and correct occlusion etc. Any alteration in the alignment of the dental arch interferes with the natural cleansing processes of the mouth and leads to pathological conditions of the gums and teeth. To keep a normal mouth clean is easy, but one in which there is " crowding " of the teeth with its attendant evils—to keep that in a hygienic state taxes one's resources to the utmost. Having failed to rear up children properly in civilised cities, with its attendant poverty (insanitation among the poorer sections at least being very marked) and inadequate fresh food supply one has got to have recourse to dentist's aid in remedying oral sepsis, so prevalent nowadays. All general practitioners must have noticed that caries is mainly a disease of children and adolescents, while pyorrhœa prevails amongst middle-aged people whose basal metabolism is often below par. If a patient with a septic mouth is sent by a doctor to a dentist, it will be latter's duty to try to bring the patient's mouth to as healthy a condition as possible by—

(1) Removing all " tartar " deposits both serumal and gingival in several sittings and the roots of the teeth made smooth after sealing by any device he thinks best. The crown of the teeth must also be polished so that it may not remain rough after finishing the scraping.

(2) " Filling " all carious cavities with gold, silver, porcelain or osteoplastics.

(3) Extracting all broken stumps and verifying the results by " skiagrams."

(4) Removing all gum pockets, *e.g.* in advanced cases of pyorrhœa by " flap " operation.

(5) Correcting any " malocclusions " by grinding, etc., to prevent undue stress and strain upon particular teeth during mastication, which often lead to inflammation of the periodontal membrane.

(6) Rectifying over-crowding of the teeth in the child's mouth by putting in regulating appliances or by " surgically removing " one or two teeth to preserve the normal alignment of the dental arch.

(7) Correcting any abnormalities of position of teeth and abnormal development of associated parts.

(8) Extracting all septic teeth with apical abscesses and those that cannot be rendered surgically clean.

(9) X-raying the jaws for unerupted 3rd molars, ' pulpless ' teeth with possible osteoporosis in the neighbourhood of the roots, etc., and treating them suitably.

(10) Fitting new teeth in edentulous cases either by a gold " crown and bridge " or other kinds of dentures, so that he can chew his food properly.

(11) Treating any gingivitis present by painting the gums with a suitable gum paint containing Tr. Iodine Rect., Tr. Myrrh., Tr. Aconite and a little glycerin acid tannic.

(12) Teaching him the rudiments of oral hygiene and asking him to visit the dental surgeon, periodically, say every 3 months, in order to see that the mouth is kept clean by the patient. The usual methods employed to preserve oral hygiene are as follows:—

II. Artificial Means of Cleansing:

(a) Tooth brush—It ought to be moderately stiff with serrated edges and its size commensurate with the patient's mouth. It should be used on rising in the morning and at night before bedtime, after which no food should be taken. The brushing should be done from the gums towards the crown of the teeth and not *vice versa*. Particular attention should be paid to the back parts of the teeth and specially the buccal surfaces of the 3rd molars. The brush must have a rotary motion against the surfaces of the teeth. If a legthened tuft of bristles is provided at the end, the lingual surfaces of the incisors are more easily cleansed. In children predisposed to caries the " brushing " ought to be done after every meal also. After brushing, the mouth should be washed properly by forcing the fluid to and fro and between the teeth. To do this, blow out the lips and cheeks with the mouth and teeth closed, first the upper lip, then the lower lip and then each cheek

separately and repeat this procedure several times. This not only helps to remove the food particles, which might be driven in the interstices by the action of the lips, cheek and tongue after brushing, but also tone up the muscles of the lips, cheek, etc.

A word of caution is necessary here against the too vigorous use of the brush, as if the brush be a stiff one and used with force particularly if the cross-brushing is too vigorous, the teeth become liable to erosion as has been proved by Miller, (*Dental Cosmos*, Vol. XLIX, 1907). Another point is, that, the tooth brush, unless properly sterilised after each use, acts as an auto-infective agent, whereas if we boil it or keep it immersed in any antiseptic solution, the bristles get damaged very soon and lose their elasticity. To effectively sterilise, without damaging the brush, is to keep it in a special glass cylinder (with a tightly fitting lid) at the lower end of which there is a constriction. The brush end rests upon this and the part of the glass jar below the narrowed part contains commercial formalin, *i.e.* 40% of paraform, which slowly liberates highly antiseptic gas, which sterilises, as well as hardens the bristles, without actually touching them.

The *datan* or frayed tooth stick used in the same way as the brush is much more commonly used by the masses in this country on account of custom, habit and on religious grounds, particularly by up-country people and the villagers of Bengal. It has got many points to recommend. Firstly, it is the cheapest as it is collected by country folks from wayside shoots of trees during their morning parambulations. Secondly, it is used once only and then thrown away and hence no need of subsequent sterilization. Thirdly, it can be made up to any desired degree of stiffness by pounding about one inch of one end preferably with a pestle (and not by chewing the end, as is often done). Fourthly, the sticks, particularly of " neem " tree contain mildly antiseptic and astringent juices and last though not least is that these vegetable shoots do not generally contain any pathogenic bacteria.

Unless there is special indication to the contrary, tooth brush or tooth stick are sufficient cleansing agents for routine use without the addition of any powder or paste, the mouth being thoroughly rinsed with water afterwards.

(c) Waxed floss-silk—Much used by dentists and people of Europe and America and some highly cultured people here. The interproximal spaces cannot often be thoroughly cleansed by either the brush or *datan*. So some device is necessary. The floss-silk should be passed a little below the gums and then pulled from the gums to the biting surface with a slight sawing motion on both the proximal and distal spaces or as an encircling band on each tooth. It can be previously soaked in some weak antiseptic beforehand, when there are abundant bacterial plaques or sordes. Thin rubber bands or worsted thread may be similarly employed. But the great drawback to their general adoption by the patients is the difficulty, discomfort and the time spent for their correct application.

(d) Tooth-picks—In some form or other are extensively used by all classes of people all over the world for cleansing the inter-proximal spaces of the teeth. Our Mussalman friends use thin (pointed at one end) metal hands. The rich ones use gold while the poorer people use silver or german silver ones. They have the disadvantage of scratching the enamel surfaces thus leading to decay in course of time and accidental injury to the gums. The up-country people use wooden or bamboo pointed sticks; these are generally dirty and often splinter and may produce infection of the gums. The people of Bengal generally utilise the stiff stalks of the *juin* grass (or the *chhon* grass of East Bengal), specially cultivated for this purpose in the meadows. It takes a few weeks for the stiff long stems to develop. This is the ordinary খড়্‌কে which we generally use and is found in most market places. This has got many advantages. First, it is cheap, a pice worth lasts a month, then it can be had in all useful thicknesses for penetrating different sized interstices, also it has a very smooth surface and does not give rise to splinters; it has got a certain amount of resiliency and does not easily break. But as it is generally sent to Calcutta stocked in country boats and kept on the floors of dirty bazars, it accumulates dust and dirt. So, they must be washed first with, say 1 in 50 carbolic lotion, then in plain cold water, dried in the sun and stored in the cupboard before use. The only difficulty is, that they are not sufficiently stiff during the rainy season. Sterilised " quill " tooth-picks are much used by Europeans and American people, they are no doubt admirably suited for their purpose, but, once used they must be thrown away. So, in a poor country like India they are too prohibitive in price for their general adoption by the mass here.

(e) Massage of the gums with fingers, is a very good and useful thing in keeping the gums healthy by promoting circulation, by mechanically cleansing them and keeping the margins free of food debris. The massage should be done as follows:—Grasp the gums with the thumb and forefinger of the right hand, a little portion at a time and squeeze gently but firmly from near the roots of the teeth towards the crown. This presses out any pus if present in the " pockets," as also food debris from the gingival trough. Then reverse the process, *i.e.* press from the gum line towards the roots of the teeth to press away the venous blood and promoting a freer arterial flow. This carried out daily for a few minutes is of great use in toning up the gums.

(f) Tooth-powders and pastes are necessary for people in whom the above means are not sufficient to keep the gums healthy. Pastes are difficult to get elegantly dispensed in this country according to one's formula. So, one has got to resort to manufactured ones; they should be prescribed to suit the individual needs of the patient. When the gums are very septic, inflamed and tender I strongly forbid the patient from using any tooth brush or tooth stick in the beginning as they lacerate the congested and septic gums leading to greater spread of infection—hæmorrhage from the gums, pain, etc. In these cases manual massage of the gums, daily thrice after meals, with a pyogenic vaccine-containing paste like " Spirogyl," " Sanogyl," or " Genozo," etc., is of much use—Besredka's theory of local immunisation. Where erosion is marked probably with an altered pH concentration of saliva (normal pH being 6·9 when secreted) towards the acid side, milk of magnesia containing tooth-pastes are indicated. In average cases any of the well-known proprietary tooth-pastes with published formulæ may be used.

As regards tooth-powders, those containing gritty particles, like powdered charcoal, chalk, pumice stone or cuttle-fish bone must be avoided, as they not only abrade the enamel, but also the insoluble and irritating particles lodging in the interstices produce irritation of the gingival margins. Those containing precipitated chalk are better, as they are not so injurious, being finer. Mag. carb. pond. is one of the best vehicles for tooth-powders, as it is antacid which is of very great advantage in the majority of mouths and the particles do not abrade the enamel. A cheap efficient antacid tooth-powder for routine use may be easily prepared by any qualified medical man as follows:—

Re.

Acid Carbolic Liquid—mv.
Oil of Cloves—mv.
Acid Tannic—gr. v.
Pot. Chloras (Extra Pure, Merck's gr. x.
Mag. Carb. Pond.—1 dram.
Calcii Carb. Precipit—1 ounce.

The Pot. chloras should not contain any free hydrochloric acid and should be added, separately diluted with the vehicle, *i.e.*, calcii carb., as otherwise pot. chloras and tannic acid triturated in a mortar, in their pure states together form an explosive mixture. If you like, you can add pulv. sapo durus say grs. xxx to form a frothy mass when washed with water. Traces of all tooth-powders must be carefully washed away by frequent rinsing of the mouth with water, subsequently.

(g) Mouthwashes may be divided into two broad classes. One kind is prescribed to neutralise the acidity of the mouth brought about by local fermentation or altered biochemical states of the saliva due to metabolic disorders. The best, cheapest and the most harmless is one containing magnesium hydroxide because it is not easily dissolved away by the saliva and so tend to prolong the antacid action. A little liquid magnesia is allowed to run around and between the teeth after cleansing the mouth and do not wash the mouth afterwards. This is particularly useful for people whose teeth " one of edge " after partaking of slightly sour articles of diet or sour drinks and whose teeth are liable to erosion or caries. The other variety is prescribed with an idea of lessening the bacterial flora of the mouth. The number and variety of micro-organisms, as has been shown by Sir Kenneth Goadby inhabiting the mouth are legion. The favourable conditions for their unrestricted growth in out of the way nooks and crannies, surrounded as they are with suitable pabulum are many.

The mouth is composed of such delicate tissues, that we cannot hope to sterilise the oral cavity by any antiseptic without at the same time producing destructive lesions in the oral mucous membrane, thus leaving them an easier prey for the growth of pathogenic bacteria later on. The best that we can do is to try and destroy the pathogenic intruding bacteria instead of trying to kill the normal bacterial inhabitants of the mouth. For this purpose, a weak penetrating antiseptic lotion, oft repeated, so as to minimise

the bacterial growth is used as a warm gargle, 1 in 200. Carbolic lotion is as good as any and better than many. It is a fairly powerful inhibitant to the growth of micro-organisms even in this strength and it is deodorant, which is of very great value in many cases of septic mouth. Further, it penetrates the mucous membrane efficiently by dissolving mucus, pus, etc., and has marked obtundent or pain-relieving properties locally. Personally, I do not prefer permanganate solution or Condy's lotion diluted, as permanganate stains the teeth a dirty brown colour. which many people object to and it does not penetrate tissues so deeply as carbolic does. Eusol or electrolytic chlorine also may be used, but many people do not like their strong odour and in many the teeth are on edge after using this group of halogen antiseptics. Hydrogen peroxide 10 vol. per cent. diluted with 1 in 4 of warm water is a safe and fairly satisfactory agent—it has also the property of removing stains, *i.e.* acting as a bleaching agent in certain concentrations. Another good and non-irritating mouth wash is as follows:—

Re.

Sodii Chlor pure Sodii Bicarb.	aa	grs. xlv.
Glycerine, Barff's Boro		3 drams.
Eau-de-cologne Spt. rectificatus	aa	1 ounce.
Aqua		ad 8 ounces.

Mft. lotio—stock.

Sig. 2 drams diluted with equal vol. of warm water, just before use and swilled round the mouth and between the teeth for about 2 minutes; afterwards the mouth may be rinsed with plain water. This leaves the mouth, cool and sweet and has got a refreshing flavour. But the habitual use of a mouth wash is not desirable as it tends to irritate the oral mucosa in course of time.

During grave illnesses like enteric, etc., when the patient cannot look after his mouth himself, the nurse or the attendant should be instructed to clean the patient's teeth and mouth properly. Otherwise grave complications like septic parotitis, septic pneumonia, etc., may arise. As the diet is of a soft pappy nature containing a lot of fermentable carbohydrates at this time, fermentation with consequent acid production is very liable to occur. During such a period, the jaws and the mouth and cheek muscles are not being exercised properly, the tissue vitality is lowest, the salivary secretion is lessened in quantity and altered in quality being often viscid and much more mucoid in nature, also there is general irritability and an inflamed condition of the mouth present. Under these circumstances, only a very soft tooth brush should be used with a mildly alkaline and antiseptic tooth paste followed by cleaning the mouth with plain water. Or, if the patient is too ill, cleaning the gums and teeth with small pieces of lint soaked in dilute H_2O_2 is recommended. Protection must also be given to the chafed and cracked lips and tongue with swabs dipped in boro-glycerine several times a day. When the patient is in a more favourable condition of health, alkaline mouth washes containing dilute "Glycothymoline," "Listerine," etc., are recommended.

This maintenance of oral hygiene is also necessary in all diseased conditions, particularly when it lasts for any length of time, *e.g.* in kala-azar with its marked tendency to cancrum oris, in high fevers with diminished or thick and ropy saliva, in acidosis of diabetes mellitus, during the later months of pregnancy and after childbirth, before and after operations about the mouth and eye operations like glaucoma and cataract and previous to all major operations, as all general practitioners and surgeons will testify.

(h) Parenteral administration of suitable remedies, as an adjuvans to the maintenance of oral hygiene is often called for. Black in Items of interest 1911, Vol. XXXIII showed that the deposition of tartar about the teeth can be controlled by administering epsom salts and cutting down his food to half the usual quantity taken, but, it recurred again on his eating heavily. Again, Broderick has shown that administration of a simple remedy like ammon chlor. has the power of altering the pH concentration of the blood and hence of the saliva. This harmless remedy may be used with advantage in middle-aged people with torpid livers and whose basal metabolism is below par and who suffer from alveolar pyorrhœa—as according to Broderick's hypothesis, people suffering from alkalosis, *e.g.*, vegetarians are liable to pyorrhœa, while people suffering from acidosis are prone to suffer from dental caries, erosion, etc. (*Vide* Broderick's Principles of Dental Medicine, 1935). A few other examples may be cited, *e.g.* the administration of specific remedies, *e.g.* in syphilis, of antimony preparations in K. A., of the administration of Pot. sulphocyanate tablets grs. ½ each T. D. S. in rapid and extensive development of dental caries, the giving of A and D vitamin preparations to ensure epithelial

resistance to infection and proper calcification of teeth suitable child patients, the giving of hæmatinic tonics to anæmic people and the administration of digestive ferments temporarily to people with weak digestion, etc. I have no doubt that every thinking medical and dental practitioner will love to work harmoniously, side by side for the maintenance of his patient's general and dental health; co-operation between the two classes of practitioners is helpful in more ways than one.

The evil habits of excessive prepared *pan* chewing of constant betel-nut munching, of heavy smoking, of *zarda* (*i.e.* tobacco leaves' extract flavoured with aromatics) and its different forms, the *patti* and the *kimam* taken along with pan, of raw tobacco leaves and slaked lime mixture, *i.e. khaini* chewing bring such altered conditions of the teeth, gums, and the soft tissues of the mouth in general, and changes in the biochemical states of the oral fluids—that these must be left for some future occasion to be discussed in detail, instead of taxing your patience further, tonight.

But this much in general can be said about them, that the lesser these things are indulged in, the better for the maintenance of a clean mouth and good general health.

Read at a clinical meeting of the Calcutta Branch of the Indian Medical Association on April 22, 1937.

JOURNAL
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MEDICAL RELIEF PROBLEMS FOR THE NEW LEGISLATURE

The Government of India Act of 1935 came into force on the 1st of April, 1937. All the eleven provinces of India have become autonomous, the administration being in the hands of popular ministers responsible to their respective legislatures. In six out of eleven provinces, the Indian National Congress, as the majority party, has formed the ministry. Now that the newly elected representatives have assumed office they will have to face the responsibilities of their position. Among the various problems that they will have to tackle are those of the nation-building departments. It is a well-recognised fact that one of the fundamental causes of India's industrial inefficiency and economic backwardness is the ill-health of the people. The ultimate effect of ill-health arising from starvation and disease is social deterioration and racial devitalisation. Health is the physical basis of national regeneration and if any plan for political emancipation or economic recovery is to prove a success in India, the question of public health must figure prominently in it. We want to bring prominently before the members of the new legislatures, the pressing need of giving their attention to this most important aspect of nation-building, *viz.*, national health involving questions of medical relief and improvement of public health. National health is a question that provides a common ground to all parties, creeds and communities for united action. So far as the Congress is concerned, it is in conformity with its programme, not within the legislatures alone, but outside as well.

The new constitutional scheme offers a splendid opportunity for a reorientation of the existing public health policy; and it is the duty of the members of the legislature irrespective of party and creed to initiate a united and vigorous policy of reform and expansion of the public health services. From the popular ministers we expect, instead of the vacillations and hesitancy of the other days, a bold policy which will give the masses real and solid benefit. The customary plea of financial stringency should not be permitted to stand in the way of national regeneration. Judicious fiscal adjustment and loans will have to be resorted to, but retrenchment, re-organization, efficiency and the elimination of waste in various directions are some of the avenues that should be carefully explored for the provision of funds for this vital department.

We should like to see an agreed health programme drawn up and accepted by all the political parties, specifying the minimum to be achieved each year and the progress to be made within the period of the life of the legislatures. It is important that there should be the closest co-operation between the provincial and local authorities—district boards and municipalities and the work of all these bodies properly co-ordinated. The co-operation of non-official bodies and private people should also be invited.

The general scheme of public health reform is a much discussed subject and it is neither necessary nor desirable that we should discuss it *de novo* here and now. The regulation of diet, encouragement of physical culture, reform of sanitary conditions, improvement of medical research, spread of medical education, expansion of medical facilities, prevention of communicable and epidemic diseases, spread of a knowledge of hygiene and the law of health—these are the directions in which greater activities and

reforms are necessary. More particularly, the following measures should be immediately adopted:—

Legislation making vaccination, inoculation and notification of all infectious diseases compulsory:

Measure for compulsory medical inspection of children and provision for a suitable machinery not only for their inspection but also for the treatment of those requiring medical aid.

Proper control of adulterated foodstuffs and drugs:

A more efficient system of supplies and distribution of quinine as an anti-malarial measure:

Research regarding national nutrition:

And Provision for national health insurance: Organisation of medical relief in rural areas.

There is always the fear that legislation and methods of compulsion are likely to be misunderstood and resented unless the needs and purposes are explained and driven home in the minds of the people. The necessity for widespread and intensive propaganda, particularly in the vernaculars, is, therefore, indicated; indeed, without effective propaganda, many measures, however well conceived, are likely to fail.

Several of these measures have been pressed for some years by the Indian Medical Association, who would be willing to assist in any scheme that is formulated. The reforms suggested here are not extravagant, in fact, they would appear to be the minimum that could be expected of any ministry; and it is time our legislators took courage in both hands to give effect to them. Much more is expected of a Government in these days than formerly, and public health is being increasingly regarded as one of the primary function of the State. It is to be sincerely hoped that the suggestions put forward will command the serious consideration of all newly elected and nominated members of the legislatures, irrespective of party and creed, and that we shall see a scheme of national health government, launched in the various provinces at an early date. Equally must the public, the Indian Medical Association, local and provincial branches—exert themselves to bring pressure to bear on their representatives in the legislatures to bring about these much-needed and much-delayed reforms.

BENGAL PROVINCIAL MEDICAL CONFERENCE, 1937

The Bengal Provincial Medical Conference will be held at Calcutta on 12th, 13th and 14th November, 1937. Subjects concerning the vital interest to the medical profession in India, e.g. Rural Medical Relief, Health Insurance Scheme, Indian Medical Council Act, etc. will be discussed in the Conference. Scientific Section of the Conference and the Exhibition will no doubt afford every medical man a good opportunity to know the advance made in this country in medical science. In order to make this Conference thoroughly representative it is requested that all members of the profession of Bengal should join the Conference and take part in the deliberations.

For particulars please write to

GENERAL SECRETARY, BENGAL PROVINCIAL MEDICAL CONFERENCE, 1937,

67, Dharamtala Street, Calcutta.

CURRENT MEDICAL LITERATURE

MEDICINE

Aortic Stenosis

CONTRATTO AND LEVINE (*Annals of Internal Medicine*, May, 1937, page 1636) in reporting on the study of 180 cases of aortic stenosis unassociated with any other significant valve disease observe that aortic stenosis is quite common and basal systolic murmurs cannot be dismissed lightly, that the ætiology in most instances was a previous rheumatic infection and in a few cases some early ill-defined infections, that the proportion of males to females affected was 3 to 2, the largest number of cases occurring in the sixth decade. They point out that the diagnosis depends on a loud basal systolic murmur, a systolic thrill near the aortic area, a plateau pulse and the finding of calcification of the valve on fluoroscopic examination. Hypertension was common and the females had a tendency to get higher blood pressure than the males. Bundle branch block and auriculoventricular block were common amongst the electrocardiographic findings and there was not a single instance of right axis deviation in the entire series. A few cases of auricular fibrillation and extrasystoles of ventricular and nodal origin were also noted. Angina pectoris was found in 22·7% of the cases and the authors tried to explain the mechanism of its production in aortic stenosis by factors other than hypertension and coronary sclerosis. Syncope also was present in 21 instances and probably it is not due to sensitivity of the carotid sinus as the latter was tested and found negative. The three most common modes of death were congestive heart failure, subacute bacterial endocarditis and sudden death. The post-mortem revealed that the calcification was limited to the valve and did not involve the coronary orifices.

The Hæmatologic Picture of Chronic Ulcerative Colitis : Its Relation to Prognosis and Treatment.

GARVIN AND BARGEN (*American Journal of Medical Science*, June, 1937, page 744) observe that in chronic ulcerative colitis there are, in addition to the decrease in the value of hæmoglobin and red-blood cells, a marked shift of the leucocytes to the left, toxic changes in the leucocytes and the greatly increased sedimentation rate and that all these changes indicate that it is a highly infectious disease. The shift to the left is moderate or marked, the non-filamented leucocytes are very numerous and show evidences of severe toxic changes with large deeply staining granules, bizarre forms of nuclei and inclusion of vacuoles. They further note that the greater the severity of infection the more marked and prominent are these changes noted. When the case is found cured by clinical, proctoscopic and roentgenologic tests, the number of leucocytes, the filament and non-filament count and the sedimentation rate become normal. These hæmatological tests, specially the filament and non-filament count are not only helpful in determining the severity of the infection but also are aids in differentiating symptoms referrable to the active phase of the disease from those which are the results of the narrowing of the rectum from scar tissue. These tests will also be useful in governing the institution of surgical intervention, the omission of active treatment and the relaxation of constant vigilance. When the hæmoglobin percentage and red-blood cell count reach the normal value there is observed a marked subjective and objective improvement in the patient. Transfusions of 200-250 c.c. of blood are found to be the most efficacious means of treating the anæmia involved, and iron in therapeutic doses is also necessary.

The Treatment of Diabetes : Clinical and Experimental Observations with New Insulins

BENNET, DAVIE AND GILL (*Lancet*, June 5, 1937, page 1319) in reporting on their observations on new insulins, *viz.* insulin retard, zinc insulin and zinc protamine crystalline insulin in the treatment of diabetes, state that the maximum effect by protamine insulin is produced 6 hours after administration and by zinc preparations 18 hours after and that the effect of zinc insulins wears off completely in 18-24 hours. This protracted action of the new preparations has the great disadvantage of producing prolonged hypoglycæmia for which great care should be taken. Moreover, they vary in their effects due to variation in the rate of absorption and other causes. Protamine insulin is the safest of the new preparations. The advantages and disadvantages of the new products are given in the following table.

TYPE OF INSULIN	ADVANTAGES	DISADVANTAGES
Ordinary Insulin	Constant in effect, invaluable in coma, available in many strengths.	Transient effect, multiple dose often needed, liable to produce frequent brief hypoglycæmia.
Insulin retard	More prolonged effect, painless on injection, controls early morning hyperglycæmia, never more than two doses required daily.	Effect somewhat erratic, occasional severe hypoglycæmic effects, bulky to administer in large doses, occasional difficulty in controlling glycosuria before lunch.
Zinc insulin and crystalline protamine insulin.	Still more prolonged effect, will often control even severe case with one injection daily.	Effect somewhat erratic, may produce unexpected and very prolonged hypoglycæmia, bulky to administer in large doses.

Eosinophilocytic Leukæmia

FORKNER AND ASSOCIATES (*Chinese Medical Journal*, May, 1937, page 609) report of a case of acute eosinophilocytic leukæmia and also give a review of other cases of acute and chronic types of the disease reported in the literature. The case occurred in a 33 year old Chinese police officer who gave no past history of any significance. His present illness started with toothache followed by sore throat both of which responded quickly to local treatments and 15 days after this he showed extensive hæmorrhagic spots on the body and temperature with extreme prostration and drowsiness when he was admitted into the Peiping Medical College Hospital. He presented amongst others the following features, *viz.* (1) temperature, (2) general slight enlargement of superficial lymph nodes with moderately marked enlargement of the submental and submaxillary glands, (3) liver and spleen enlarged, 4·5 and 6 cm. respectively, (4) hæmorrhagic spots on the skin, (5) leukæmic retinitis, (6) restlessness and mental cloudiness with rigidity of the neck muscles and Babinski's sign positive on the left side and doubtful on the right and the following characteristic laboratory findings, *viz.*,

R. B. C.—4,100,000 per c.mm.; *Hb*—12·3 gms. per 100 c.c.; blood platelets—less than 5,000 per cmm.; coagulation time—10·5 min.; bleeding time—2·5 min.; icterus index—5·0 units: *W.B.C.*—118,000 per c.mm.; lympho—1%, monocytes—3%, neutrophiles—13%, basophiles—1%, eosinophiles—75%, myeloblasts—7%, occasional nucleated red cells with slight polychromatophilia and slight basophilia: W. R. and Kahn tests—negative: The spinal fluid pressure was 100 mm. of water, the cell count showed 25% lymphocytes, 75% esinophiles. The patient died within 7 days of admission and no post-mortem examination was allowed.

Subcutaneous Smallpox Vaccination

GALLARDO AND SANZ (*The American Journal of Hygiene*, March, 1937, page 354) report about their studies and observations with subcutaneous method of vaccination with bacteria-free vaccine. The incubation period in subcutaneous primary vaccination was found to be less regular than the ordinary cutaneous method. The first local symptoms appeared from the 5th to the 10th day in cases where very active and recently prepared viruses were used. With less active viruses the local symptoms were delayed up to 20 days. These irregularities were less observed in cases of revaccination, the immune and accelerated reactions appearing from 4 to 48 hours. The local and general reactions with subcutaneous method were found to be less intense than these met with after cutaneous method. The characteristic local reaction was reddening and infiltration around the site of injection with the formation of a hard central nodule, the intensity of these local reactions varying with the strains of vaccinia used. Large number of cases were afebrile though in some cases moderate rise of temperature was noticed. The percentage of takes in subcutaneous method was similar to that of cutaneous method and the immunity produced in the successful subcutaneous vaccination was as solid and possibly as lasting as with ordinary cutaneous method of vaccination. The special advantage of the subcutaneous method is the complete absence of all

complications associated with the formation of pustule in the ordinary cutaneous method of vaccination.

Cobra Venom in Therapeutics

Chopra and Chowhan (*Indian Medical Gazette*, June, 1937, pages 339-348) report on the therapeutic effects of cobra venom given to one hundred patients treated in the Calcutta School of Tropical Medicine during the last two years. The patients fell under 5 groups. In group I are included patients who suffered from indefinite symptoms of pain and uneasiness; in group II patients of the nerve type of leprosy; in group III patients with new growths; in group IV patients sensitive to cobra venom injection and in group V patients suffering from such nerve lesions as paraplegia, etc. The drug was injected intramuscularly twice a week in every case starting with 0·5 to 1 m.u. and gradually increased to 10 m.u. and in some instances to 20 m.u. The pain in most cases was relieved after 3 or 4 injections and there was a concomitant improvement in the general condition. The relief of pain was not psychical as the pain continued when venom injections were replaced by salines and disappeared when the former injections were re-started. In cases of new growth of the tongue, pharynx, and larynx, the growth itself showed no retrogressive changes and in cases of paraplegia there was no improvement whatsoever; the patients with neuritis and neuralgia were those that improved most under this therapy.

Like morphine and opium alkaloids cobra venom has a strong analgesic action on the sensory nerve endings but the difference is that unlike morphine cobra venom takes a long time to develop its effect and the analgesia when produced lasts longer. No untoward effect was noticed by the authors during this treatment. The authors maintain that when the neurotoxin principle of cobra venom will be separated from other active principles, *e.g.* hæmolysins, cytolysins, hæmorrhagins as suggested by them and their actions studied these substances will be better utilized as potent therapeutic agents.

Parenteral Liver Extract Therapy in Pneumonia

Wilson and Carey (*American Journal of Medical Science*, June, 1937, page 752) observe that the use of parenteral liver extract in 30 cases of pneumonia resulted in recovery in 83% with a significant rise in the leucocyte count in all but 2 cases and in the increased output of urine. The treatment is simple, cheap, devoid of any risk of serum anaphylaxis and caused only slight temporary local pain.

Clinical Use of Extract of the Adrenal Cortex

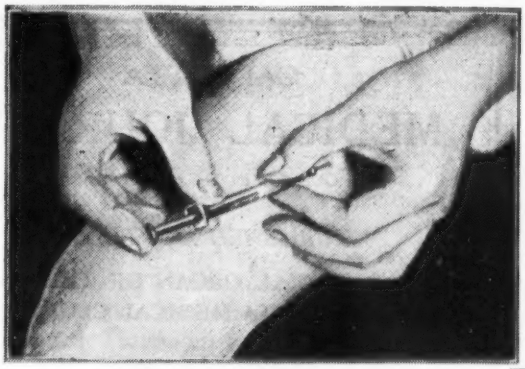
Green (*Archives of Internal Medicine*, May, 1937, page 759) reports on the treatment with salt and an extract of the adrenal cortex in 34 cases of Addison's disease during the period from 1930 to 1937. He observes that this mode of treatment though it cannot cure the disease has definitely prolonged life in a limited group of cases. He further observes that the response has been so specific as to suggest that its therapeutic trial constitutes a reliable diagnostic test. The author also mentions conditions other than Addison's disease where adrenal cortex may be used with marked benefit.

Autoserotherapy for Drug Addiction

Vivian (*Lancet*, May 22, 1937, page 1221) reports 8 cases of drug addiction illustrating the efficacy of autoserotherapy in relieving within two to three weeks the distressing withdrawal symptoms, *e.g.* diarrhœa, restlessness, anorexia and sneezing and removing the physical need for the drug. The serum is obtained from 3 or 4 blisters made by applying irritant plasters. It is injected intramuscularly in 5 to 10 c.cm. doses and is repeated every 3 or 4 days. The result obtained in all the cases is very encouraging and the author appeals for its further trial.

The Use of Benzedrine Sulphate in Postencephalitic Parkinson's Disease

Solomon and Associates (*Journal of American Medical Association*, May 22, 1937, page 1765) write that benzedrine-sulphate is very useful in relieving the symptoms of postencephalitic Parkinson's disease, specially in those cases who complain of drowsiness and lack of energy. The drug is more effective in such conditions when combined with scopolamine or stramonium and is found to act almost specifically in abolishing or reducing the number and severity of occulogyric crises. They further observe that it was ineffective in arterio-sclerotic Parkinson's disease and psycho-neurotic asthenia. However, the authors advise that the drug should be used with great caution.



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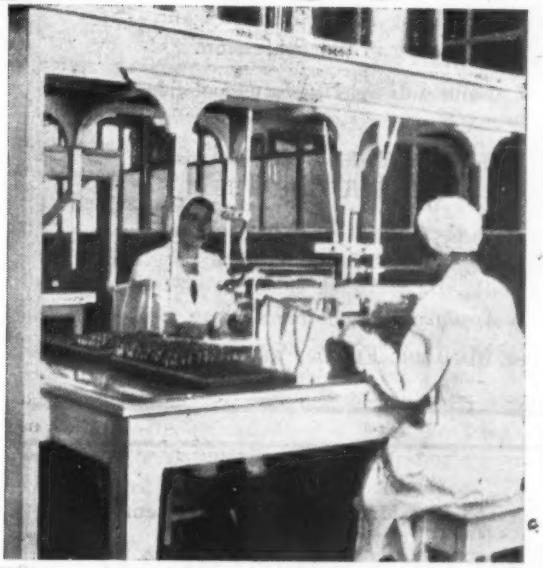

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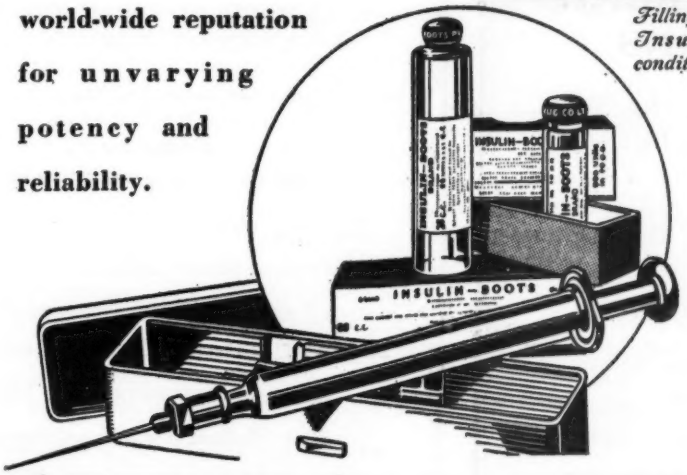

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SURGERY

The Rationale of the Tannic Acid-Silver Nitrate Treatment of Burns

Bettman (*Journal of American Medical Association*, May 1, 1937, page 1490) observes that the combined tannic acid and silver nitrate treatment of burns is superior to the treatment by tannic acid alone as in the latter repeated applications are necessary, the coagulum forms slowly and the loss of circulating body fluid continues. In the combined treatment the local seal produced is very efficient, being formed immediately and converted at once into a permanently insoluble, nonabsorbable and irreversible matrix. There is immediate stoppage of loss of fluid so that the unusual wide-spread and important systemic effects of the burns are not seen —temperature is not above 100°F: P/R—low: blood count—normal: urine—normal, no cast, no albumen, no suppression. The wound is dry and clean from the beginning and kept so throughout, preventing the infection and promoting speedy healing with least formation of scar tissue. This therapy has markedly shortened the period of hospitalisation, produces minimum scars and saves lives that would otherwise be lost.

To be successful the treatment should be started immediately and greasy or oily applications should never be used. After giving an effective narcotic all blebs are to be opened and all loose skin and other burned tissues are to be removed. A thorough application of fresh 5% tannic acid solution is made with cotton swabs and is to be followed by the application of 10% silver nitrate solution. This finishes the local treatment when the patient is placed in a tent heated by electric light bulbs and burned areas are dried and kept dry. In a few days the coagulum dries and is removed leaving entirely healed areas. Unhealed areas are treated with application of oxyquinoline sulphate scarlet R gauze in a single layer and healing is greatly facilitated. In this combined treatment the fluid loss is greatly checked, toxæmia markedly controlled and further supply of fluid to the system when necessary is not difficult as stomach retention in such cases is quite good from the start.

An Evaluation of the Results of the Injection Treatment of Inguinal Hernia

Mckinney (*Annals of Surgery*, March, 1937, page 338) reports on his experience of 700 cases of inguinal herniæ treated by the injection method in the surgical department of the University Hospital of Minnesota during the period from 1931 to 1936. Of these 700 cases 300 had at least six injections each and are thus selected for the statistical study. The hernia was indirect inguinal in the greatest number, a few only scrotal and some were indirect and recurrent. The result of treatment was cure in 83%. The success was also due to the fitting of the truss and its use by the patients day and night during treatment and at least 6 months after the last injection. Technically, it is not into the hernia that the injection is made but into the opening, aperture, canal or rings through which the hernia protrudes. By repeated injections of sclerosing solutions into the canal fibrous connective tissue is produced. The solutions used for injection are many and the one most frequently used contains phenol 50 parts, alcohol 25 parts, Lloyd's specific tincture of thuja 25 parts. Dr. Bratrud reports excellent results with Proliferol with addition of 2 drops of phenol-thuja mixture to each cubic centimetre. Dr. Rice of the same hospital uses a mild soap solution which causes less pain and requires no use of a preliminary local anæsthetic. Complications are rare and not very serious. They are often due to local irritation or rarely to entry (inadvertently) of the irritating solution to blood or peritoneum causing systemic reaction on the one hand and peritonitis on the other. The most frequent complication was swelling of the spermatic cord. The disadvantages of the injection method are (1) long time required for complete cure, (2) uncertainty as to the number of injections a patient requires, (3) inability of some patients to keep the hernia reduced by the truss, (4) the chances of getting inadequate treatment for such factors as sickness, accidents, lack of funds, etc. The advantages are (1) the treatment is ambulatory, (2) there is no chance of getting serious complication, (3) patients in whom surgery is contra-indicated can have the treatment without any risk, (4) most excellent results are obtained in patients of advanced age as also in the small hernia of the young individual. The author concludes by saying that "the injection therapy has a place in the cure of hernia and instead of condemning it as quackery, surgeons should add it to their armamentarium in the treatment of hernia."

Treatment of Fractured Patella by Excision. A Study of Morphology and Function

Brooke (*British Journal of Surgery*, April, 1937, page 733) thinks that in man it subserves no useful

function. Experimental evidence goes to show that in its absence the efficiency of the knee-joint is increased regarding its power and rapidity of movement. The author reports of 30 cases of fractured patella where removal has been followed by rapid restoration of full function.

Evaluation of Abdominal Symptoms in the Diabetic

Bothe and Beardwood (*Annals of Surgery*, April, 1937, page 516) in reporting on the study of 1,260 diabetic cases observe that 136 or 10·8% had diabetic acidosis and of these 136 cases 96 or 74% showed abdominal symptoms whereas 40 or 26% showed symptoms relating to the central nervous system, *viz.* drowsiness and coma. They further observe that of the patients presenting abdominal symptoms 85% showed leucocytosis (W. B. C. over 11,000) and 80% had fever over 99°F. These patients thus had nausea, vomiting and abdominal pain and tenderness associated with leucocytosis and fever and thus they simulated the clinical picture of acute intestinal obstruction. The authors point out that acidosis should be ruled out in any diabetic showing abdominal symptoms before any surgical intervention is made and surgery should not on any account be undertaken with CO_2 of less than 40 volumes per cent.

Femoral Hernia in the Male

Wilmoth (*Annals of Surgery*, April, 1937, page 549) reports on 63 femoral herniæ occurring in adult males during the past six years as opposed to 2,761 cases of inguinal herninæ observed during the same period. The author observes that the femoral sac occurs usually after the age of forty and is not a preformed sac but a developmental condition just as in the case of direct inguinal sac. The inguinal route of repair of these femoral herniæ is the method of choice.

Gentian Violet Treatment of Leg Ulcers

Thurmon and Chaimson (*New England Journal of Medicine*, June, 1937, pages 11-14) report on the success achieved by them in treating cases of chronic and intractable ulcers of the leg with 2% aqueous solution of gentian violet. The most common feature of all chronic ulcers is the secondary infection and a drug that can not only tackle the infection but also controls excessive granulation formation and prevents tissue damage will be most suitable in such cases and gential violet is found to be one of such drugs. The solution is applied locally 3 to 5 times daily for a few days till a hard firm dry crust is formed. The ulcer is never bandaged and kept air-dried. If any portion of the crust is loose or becomes pocketed it is removed and fresh solution is applied till a dry firm crust is formed in its place. The ulcer soon heals under the crust and the crust when removed leaves a healed surface.

OBSTETRICS AND GYNÆCOLOGY

Acetylcholine in the Treatment of Uterine Inertia

Bell and Playfair (*Journal of Obstetrics & Gynæcology of the British Empire*, June, 1937) have given their experiences of the therapeutic effects of acetylcholine in 23 severe cases of uterine inertia, at the Queen Charlotte's Hospital. A case was considered suitable only when labour had lasted at least 48 hours, whether with weak pains or with colicky uterine contractions, either case being associated with slow dilatation of the cervix.

The dosage being empirical varied considerably, but the most effective was found to be four doses of 0·2 gm. acetylcholine given intramuscularly at three hour intervals. Full doses should be given in all cases though inertia appears to have responded to treatment before the last dose is given.

The authors conclude that:—

Acetylcholine is of definite value in the treatment of uterine inertia and has proved more successful than other preparations, used, *e.g.*, œstrin, pitocin, pituitrin, pituchinol and quinine.

Acetylcholine should not be given until sedatives and minor stimulating measures have failed.

Harmful effects have not been observed in the mother or the child.

Acetyl-B-methylcholine (Mecholyl) is a drug with a similar action but having a more prolonged and constant effect.

TROPICAL MEDICINE

The Use of Anthelmintics

Faust (*Journal of American Medical Association*, January 30, 1937, page 386-392) mentions some of the important anthelmintics with their actions,

therapeutic doses, toxic manifestations and their standard of efficiency.

Beta-naphthol—used for hookworm: irritant to skin, gastro-intestinal tract and kidney and depressant to cardiac and respiratory centres: contra-indicated in malaria and nephritis: more toxic and less efficient and so may be abandoned.

Thymol—used for hookworm: irritant to mucous membrane and kidney, first stimulates and then depresses the central nervous system: less efficient than carbon tetrachloride and both more toxic and less efficient than tetrachlorethylene for eradication of hookworm: therapeutic doses—2 or 3 divided doses of 1 to 2 gm. each, powdered or finely granular and mixed with lactose or soda bicarb followed by saline purgative in 2 hours.

Oil of Chenopodium—used for hookworm: contains not less than 60% and not more than 80% of an acetic soluble fraction (ascaridol): irritant to skin and mucous membrane, depressant to circulation, first stimulates and then depresses cardiac and respiratory centres: therapeutic dose—1·5 to 3 c.c. given in 3 divided doses, no pro-treatment purge but saline 2 or 3 hours after: minimum lethal dose is 3 c.c.: the drug is contraindicated in nephritis, organic heart disease, hepatic dysfunction or ulceration of the intestine.

Carbon-tetrachloride—used for hookworm: skin irritant and mildly irritant and anæsthetic to mucous membrane, damages liver and produces cloudy swelling in the kidney: therapeutic dose is 3 c.c. given in capsule or in a lump of sugar, specially preceded the night before and 2 hours after by saline purgatives, minimum lethal dose is 1·5 c.c.: 90% efficacious for eradicating hookworms but should not be used alone when ascaris is present: contraindicated in alcoholism, cirrhosis of the liver, respiratory and kidney diseases: must not be used in presence of absorbable fats or when blood calcium is below normal level.

Tetra-chlorethylene—used for hookworm: more efficient and less toxic than carbon-tetrachloride, 90% rate of cure for hookworms (specially Necator American), more efficient than oil of chenopodium for trichocephalus and is inert for ascaris; non-irritant to skin and mucous membrane, produces little damage to liver or kidney; therapeutic dose is 3 c.c. given in the similar way as carbon-tetrachloride: alcohol and absorbable fats must be omitted for 2 days before starting the treatment.

Santonin—classic for round worm: little effect on circulation and respiration, excessive doses first stimulate then depress the central nervous system, particularly special sense centres: effective only when given with calomel and followed by saline: must not be given on empty stomach or with absorbable oils; certain persons have an idiosyncrasy to the drug and produce varied symptoms such as ocular disturbances, hallucinations, vertigo, convulsions and coma.

Hexyl resorcinol—In gm. dose given on empty stomach in the early morning in hard gelatin capsule: is 90 to 100% efficient in removing ascaris, from 80 to 85% for hookworm, from 40 to 45% for trichocephalus: should be followed by saline purgatives.

Methyl violet—for clonorchis sinensis, strongyloidis stercoralis: 0·06 gm. given in enteric coated tablets or 25 c.c. of 1% solution introduced into the duodenum.

Oleoresin of Aspidium (male fern)—for tapeworm: irritant to gastrointestinal tract, causes jaundice, necrosis of liver, depresses the circulation, stimulates spinal cord producing twitchings and convulsions: therapeutic dose—from 1·8 to 3·6 c.c. in doses of 0·6 to 1·2 c.c. given at an interval of half an hour on empty stomach followed by saline purgatives: diet must not contain absorbable fat for 2 days before treatment: toxic symptoms consist of severe abdominal cramps, convulsions, optic neuritis and blindness; the drug is contraindicated in anæmia, debility, old age, infancy and pregnancy.

Pellitierine Tannate—for tapeworms: gastro-intestinal irritant and cause in toxic doses ascending paralysis: therapeutic dose 0·25 gm.—given in decoction form on empty stomach: good for removing pork tapeworm but not effective for hymenolepis nana: contra-indicated in pregnancy.

Antimony and potassium tartrate—administered by intravenous routes: specific anthelmintics in schistosomiasis, myositis in trichuris and dracanculosis.

Emetine hydrochloride—used for schistosomes, liver flukes and paragonimus.

Ethyl chloride—used for "creeping eruption" due to infective stage larvæ of hookworms migrating in cutaneous layers.

Pellegra—Theories of Causation

STANNUS (*Tropical Diseases Bulletin*, March, 1937, pages 183-204) after giving a critical review of the literature on the subject gives in the following line the general summary and conclusions:—

1. Pellagra has a world-wide distribution.

2. There are a number of conditions, both in temperate and warm countries, which resemble pellagra in that they present many of the symptoms of that disease though not exhibiting the classical triad of signs "Dermatitis, Diarrhœa, Dementia" without which, but quite wrongly, it has been commonly supposed a diagnosis cannot be made.

3. Many cases, without the endemic areas, go undiagnosed because the symptomatology of the affliction is not generally well recognized.

4. There are no separate conditions such as have been designated pseudo-pellagra, para-pellagra, alcoholic pellagra, secondary pellagra, pellagroid, etc., they are simply cases of pellagra.

5. Maize plays no specific part in the ætiology of the disease.

6. All the theories of causation which postulate a specific infective agent lack support.

7. Deficiency of protein of high biological value *per se* is not the cause of pellagra.

8. There is no definite evidence that pellagra is a simple avitaminosis.

9. A study of the disease from a wide angle suggests a new hypothesis, namely that pellagra is one among a number of conditions which are severally due to a failure in the production of "principles" by the interaction of "extrinsic factor" in the food with "intrinsic factor" normally produced in the gastric juice.

10. In pellagra one or other or both factors may be involved—an extrinsic factor due to deficiencies in diet, an intrinsic factor due to non-secretion consequent upon gastritis.

11. The extrinsic factor is commonly present in foodstuffs containing protein of high biological value and some parts of the Vitamin B complex.

12. The anti-pellagra factor is probably stored in the liver. Refined liver extracts advocated for the treatment of pernicious anæmia should not be used for pellagra.

13. Its action is probably that of a catalyst, governing the metabolism of the cells of the skin, mucous membranes and nervous system.

14. What has been spoken of as the anti-pellagra factor may be really a complex of separate factors.

15. The distribution of the exanthem in pellagra is determined by pre-existing changes in the skin due to traumata of many kinds.

16. The changes in the tissue cells are of the nature of a change in the colloid state of their contents towards lessened dispersion of flocculation. (Author's Summary).

Betel Nut as a Useful Tæniafuge

LIU (*Chinese Medical Journal*, Sept., 1936, page 1273) reports on the successful results obtained by betel (areca) nut in ten cases of tapeworm infestation. The nut is given either in powdered form or in decoction and the latter is prepared by boiling thirty sliced nuts in 200 c.c. of distilled water for 30 to 60 minutes. The dose is 30 gm. and is given on empty stomach in the early morning and the patient is allowed no food for the next six hours. The bowels usually begin to move in 3 hours but if they do not, saline or castor oil is given after that. The unworming capacity of betel-nut is found to be quite efficient.

PEDIATRICS

Advance in Therapy in Pediatrics

BENNHOLDT-THOMSEN (*Medizinische Klinik*, 32: 1638 (November, 27) and 1673:1674 (December 4) 1936).

In scanning the pediatric literature, the writer found the following data which, he believes, mark an advance in therapy:

1. *Angina.* Medication with bismuth, as recommended by Vaz de Mello, on the basis of experience in 130 acute cases in children up to 14 years. The doses are: ½ ampoule for the first two years of life, using "bismuth infantil"; 1 ampoule of the same preparation for the ages between 2 and 6 years; after this one half the adult dose of any kind of bismuth. In 95 cases, the effect appeared in the first 24 hours; in 33, it appeared in 58 hours and in the remaining two in 72 hours. O. Boese reports

similar results with bismuth in acute suppurative angina, in 140 cases.

2. *Stimulation of Appetite.* Iodine milk (6 drops of a 10 per cent. alcoholic solution of iodine in 200 gm. of milk) was found to be a good stimulant for school children, by L. von Eory; after six weeks, the appetite, mood and muscular tonus of the children improved, and the weight increased (1 to 3 kg.). Contra-indications are: pre-puberty, puberty and hyperthyreosis.

3. *Bronchopneumonia.* Turpentine oil and analgit, as used, apparently with advantage, by G. Huber, in bronchitic, bronchiolitic and bronchopneumonic diseases of the infant and small child. The turpentine oil (1 to 2 tablespoonfuls, according to the patient's age, stirred in a cupful of milk) is added to the bath. The duration of the bath is about five minutes, or until the skin becomes red, after which a shower with pure water of room temperature is given. Sore parts of the skin are previously covered with grease. Intertrigo is a contra-indication. Analgit is a salve (1 to 2 per cent. solution of activated isothiocyanallyl with extract of capsicum and arnica and 8 per cent. salicylates). It is thickly applied on the chest, which is then covered with a woollen cloth, until the skin is red (three to four minutes). The salve must be carefully removed with cotton soaked in oil and the chest powdered and again covered with a woollen cloth.

4. *Diphtheria.* Two new medicaments are recommended, namely, pyoktanin, against the bacilli, and tetrophan, against the post-diphtheritic respiratory and other pareses. Pyoktanin is used in 3 per cent. aqueous solution of which one drop is instilled into each nostril, twice a day, with the child's head bent back. The child must then sniff, without lifting the head, and remain in this position for a few minutes. The tonsils are painted each time with the same solution. After eight days, the smears are usually negative.

Tetrophan (dihydronaphthacridinemesocarbonic acid) is used in a 5 per cent. solution, of which 0·5 to 1·0 c.c. is given intralumbarly, as a rule, on two consecutive days (beginning with the smaller dose). Peroral administration is less effective, as far as this can be said to date.

5. *Empyema.* On account of the high mortality of infantile empyema, its treatment comes up for discussion frequently. St. Flesch, on the basis of his experience, recommends a systematic puncture therapy. He uses a 20 c.c. syringe with a needle of rather large calibre; the syringe and needle are connected by a rubber neck which fits tightly to both. The site of puncture is, if possible, the seventh intercostal space in the posterior axillary line. The needle is introduced vertically and, after slow aspiration, withdrawn rapidly under strong tension of the skin.

The pediatric clinic of the Berlin Charite uses transfusions of type-true citrated blood; these transfusions not only boost the general condition and resistance, but also influence the local process favourably. The blood is mixed at a rate of 10: 100 with freshly prepared 5 per cent. sodium citrate solution, and 15 to 20 c.c. per kg. of body weight is injected intravenously, but not without a previous biologic test a la Oehlecker (injection of minimal quantity, five to six hours before the transfusion proper.).

6. *Erysipelas.* Early roentgen irradiation, as recommended by P. Sonnauer. It prevents the spreading of the process, lowers the fever and improves the general condition. If this effect does not appear within 24 to 28 hours, the irradiation is repeated, but not before two or three days after the first. The dose is 13 to 17 H. E. D. (80 to 100 r) per field.

7. *Cardiac Disturbances.* (a) For *ulcerous endocarditis* (in the newborn, due to fresh gonorrhœal infection, in the nursing infant, secondary to bronchopneumonia and, in the small child, secondary to otitis, mastoiditis, lymphadenitis, stomatitis, tonsillitis, cutaneous abscesses, furuncles and erysipelas), P. von Kiss recommends trypaflavine, blood transfusion and removal of the focus (in doubtful cases, tonsillectomy). The maximal doses for trypaflavine are: up to the age of 1 year, 3 c.c. of the 0·5 per cent. solution; up to the age of 3 years, 5 c.c.; up to the age of 7 years, 15 c.c., and up to the age of 14 years, 20 c.c. The treatment is as follows: on the first day, one-fourth of the dose corresponding to the age is given; after an interval of one day, one-half of the dose; then three-fourths of the dose and the full dose, each after an interval of one day, are given which brings the full dose to the seventh day of treatment. In the case of good tolerance, the injections are continued for four or five more days. Dextrose or, if necessary, digitalis, is added to the trypaflavine. On the days without injection, blood transfusions are given (50 to 100

c.c. of citrated blood, intravenously, under addition of 10 c.c. of 20 per cent. dextrose, 1 c.c. of coramin or cardiazol). Over a period of 20 to 30 days, von Kiss gives 10 to 15 transfusions, *i.e.* a total of 1 to 1·5 litres of blood.

(b) For *rheumatic endocarditis*, salicylate is recommended in the following doses: The arithmetic third in gm. of the number of years, for example, 4 gm. for a child of 12 years, is administered daily, in the morning, within four hours, for three days, after which 0·5 gm. is given three times daily for 10 days. If the temperature is still subfebrile and the blood sedimentation accelerated the treatment may be continued in conjunction with pyramidon (0·10 gm., five times a day). In the case of symptoms of salicylate poisoning, discontinuance of the salicylate and administration of sodium bicarbonate and lots of water, for several hours, should have to be taken recourse to.

(c) *Diphtheritic Cardiac Disturbances.* From the viewpoint of cardiac complications and their treatment, von Kiss distinguishes three phases of diphtheria:

During the first, which lasts for two or three days, the toxin effect must be neutralized by serum, the tachycardia must be reduced by antipyretics, formation of stimuli, reduced by quinine, the coronary circulation, improved by dextrose intravenously, and, at the slightest sign of circulatory insufficiency, camphor preparations must be injected; sedatives are also in order.

During the second phase, which lasts for 14 to 16 days, digitalis may be administered, except in the case of disturbances of auriculo-ventricular conduction (never more than 0·02 to 0·03 gm. per day). Strychnine may be given in any case (1 c.c. of a 1 per cent. solution, twice daily, increasing the dose every second day, until a daily dose of 6 to 8 c.c. is reached). Other medications are: intravenous injection of 40 to 50 c.c. of a 20 per cent. dextrose solution with 4 to 5 units of insulin, once or twice a a day, diet rich in carbohydrates, sweetened lemonades, fruit, four to five egg yolks and 800 gm. of fluid a day; at the slightest sign of circulatory weakness, camphor.

During the last phase, which lasts for three to seven weeks, or even longer, strict rest in bed is indicated, charcoal, to combat meteorism, and intravenous infusion of dextrose, as in the previous phase, with addition of digitalis (0·01 gm. for 10 days. repetition after a pause of 10 days, until the process is over). In addition, for three weeks, daily injection of strychnine in increasing doses (up to 8 mg. a day. should be given.

8. *Whooping Cough.* A new preparation, petein, as tried by S. Werner in 70 cases including 19 nursing infants. It was found efficacious, but not dependable; many failures were especially observed in the nursing infants. Werner explains this by poor anti-body formation. He stresses the importance of early treatment and the futility of prophylaxis.

Kaludjerski observed favourable results with calcibronate " Sandoz " in eight severe cases; within a few days the attacks became rarer and milder and vomiting and restlessness disappeared.

9. *Narcolepsy.* von Lederer used ephedrine in narcolepsy, observing a symptomatic effect, namely, relief of the pathologic attacks of sleep. Picks had shown that ephedrine is a diencephalic stimulant, and Penta had shown that it interrupts sleep induced by luminal. Its symptomatic effect in narcolepsy is therefore not surprising.

10. *Oxyuriasis.* Rietschel recommends a strict protein-fat-sugar diet without any cellulose. The diet includes milk (without cocoa, etc.), meat (all kinds and fish, well chewed), butter and fats, all kinds of sugar, no flour, except toasted zwieback and some fresh fruit juice. All fruits, vegetables and salads are forbidden. The diet lasts 14 days. During the first week an enema of cold water to which aluminium acetate or vinegar is added (2 tablespoonfuls in ¾ to 1 litre of water) is given every evening.

11. *Infant Feeding.* There is no decrease in breast feeding, but a certain lack of perseverance; in the majority of the cases, babies are weaned before the third month. The importance of propaganda in this respect cannot be overemphasized. (*International Medical Digest:* Vol. 30, No. 2, February, 1937, pages 92-94).

ASSOCIATION NOTES

DACCA BRANCH

Proceedings of the meeting of the Indian Medical Association, Dacca Branch, held at 7 p.m. on the 18th May, 1937, in the J. N. Int. College Hall, Dr. S. C. Gupta presiding.

Members present—Dr. S. C. Gupta (President), Dr. S. K. Mitra, Capt. C. C. Das Gupta, Drs. K. C. Dhar, A. M. Das, H. Ganguli, K. P. Chakravarty, D. N. Seal, M. L. Boral, S. C. Ray, N. Banerjee and C. H. De.

1. Proceedings of the last meeting were read and confirmed.

2. Read a letter No. C. L. I. dated the 1st May, 1937, from the Convener of Rules Amendment Sub-Committee, I. M. A.

Resolved that a sub-committee be formed with the following members with power to co-opt to go through the rules and to suggest any amendments thereof and to submit a report on or before the 30th of May, 1937.

Dr. K. C. Dhar, Capt. C. C. Das Gupta, Drs. H. Ganguli, S. C. Ray, and N. Banerjee.

Jt. Secretaries to convene the sub-committee meeting.

3. Read a letter dated the 4th May, 1937, from the General Secretary, I. M. A.

Resolved that the Jt. Secretaries be requested to take necessary action.

4. Resolved that Dr. S. K. Mitra be elected a representative to the Central Council, I. M. A., in place of late Dr. G. P. Mitra.

Dr. S. K. Mitra proposed a vote of thanks to the Chair after which the meeting terminated and light refreshments were served.

S. C. Gupta.
President.

N. Banerjee,
Jt. Hony. Secretary.

HOOGHLY, CHINSURA AND CHANDERNAGORE BRANCH

Proceedings of the second General Meeting held on the 13th June, 1937, at the residence of Dr. S. C. Ghosh, Chinsura, at 5-30 p.m.

Members present—Drs. M. N. Chakravarty. (Chairman), M. M. Chatterjee, N. N. Konar, B. C. Chatterji, B. K. Das, K. N. Chatterji, Capt. J. C. Dey, Drs. K. C. Nag, D. Ghosh, S. K. Sen, K. C. Mallik, S. C. Ghosh, N. K. De, K. K. Seal, S. C. Guha, S. P. Roy, S. C. Mallik, S. N. Bhandary, A. N. Palit, R. Bhattacharyya and (Miss) L. Roy.

The proceedings of the last meeting were read and confirmed.

I. As there was a difficulty in opening a public account in the Postal Savings Bank as per resolution No. 4 of the last meeting, the treasurer Dr. M. M. Chatterjee was authorized to open and operate a public Savings Bank account in the Hooghly Central Co-operative Bank situated at Chinsura, on behalf of the Association.

II. (a) Dr. Bankim Chandra Chatterjee was unanimously elected to be a representative of this Branch to the Central Council of the I. M. A.

(b) Drs. Basanta Kumar Ghose, Mohini Mohan Chatterjee and Capt. J. C. Dey were unanimously elected to be representatives of this Branch to the Provincial Council, Bengal, of the I. M. A.

III. The letter of the Civil Surgeon, Hooghly, No. 960, dated the 25th May, 1937, re: opening of centres for the teaching of first aid, mother-craft, home-nursing, etc., under the St. John Ambulance Association was considered and resolved that the opinion of the Provincial Council, Bengal, be asked on the matter and in the meantime, the Civil Surgeon, Hooghly, be requested to place details about his programmes of work and the terms of co-operation with the Red Cross Society and he be further requested to be present in the next meeting to facilitate discussion and decision on the matter.

IV. On the motion of Dr. K. Seal, the re-organisation scheme of the I. M. S. as framed by the Secretary of State for India and the India

Government and published by the Indian Defence Department in the India Gazette, dated the 25th March, 1937, was taken up for consideration. He gave a brief summary of the scheme dealing with its salient features and emphasising on the reactionary changes and their implications. He pointed out how the whole scheme solely aimed at the giving of more facilities and privileges to the British Officers and having an absolute supremacy by them over the Indians in the service whereby the latter have become great losers. So he characterised this as being anti-Indian, imperialistic and the most reactionary because it gives a complete set-back to the principle of Indianisation so long followed. After some discussion it was resolved—

(a) That this Association totally disapproves of this scheme, as it introduces the policy of perpetuation of the British element and the elimination of the Indian element in the Indian Medical Service.

(b) That this Association, while unequivocally condemning the practice of recruitment of members in the I. M. S. by nomination, strongly urges on the Secretary of State for India and the Government of India to hold open competitive examinations simultaneously in India and Great Britain for this purpose.

(c) That this Association demands the complete abolition of the civil side of the I. M. S. as being wrong in principle, quite unnecessary for the purpose and fully derogatory to the self-respect of the Independent Medical Profession.

(d) That this Association emphatically protests against the reservation for British Officers of the I. M. S., of the four senior and the three junior specialist posts in the Calcutta Medical College and Hospitals, which have been successfully and creditably held for a long time by the Indian Officers of the I. M. S. and the members of the Provincial Medical Service respectively, and also reservation of such specialist posts in other provinces, as this is detrimental to the interests of the country, the medical profession, and the medical services of various grades.

(e) That a copy of this resolution be sent to the press.

V. Dr. Shyamapada Roy was co-opted a member of the Executive Committee.

VI. The question of having a paid man for office work, distribution of letters, keeping account, etc., was postponed owing to insufficiency of funds at our disposal till the next Executive Committee meeting.

VII. A small committee was formed to see Capt. R. Sinha in connection with his wishes to lend his house at Chinsura for the location of office, as conveyed to the meeting by Capt. K. N. Chatterjee.

With a vote of thanks to the Chair, the meeting terminated. Dr. Ghosh was all attention to the guests who were treated with tea and light refreshments.

K. Seal,
Assistant Secretary.

JESSORE BRANCH

Proceedings of the meeting of the Indian Medical Association, Jessore Branch, held on the 3rd July 1937.

Members present—Drs. P. G. Basu, M. C. Ganguly, R. M. Saha, N. N. Chatterjee, N. C Banerjee and G. Bhattacharyya.

Resolutions

1. The proceedings of the last meeting be confirmed.

2. An Executive Committee consisting of the following members be formed:—

Drs. S. C. Sen, N. N. Chatterjee, J. R. Dhar. P. G. Basu and G. Bhattacharya.

3. Dr. J. R. Dhar be elected Secretary and Treasurer of the Association.

4. Three members will form a quorum.

5. Dr. J. R. Dhar be elected representative to the Central Council of the I. M. A. from the Jessore Branch.

The meeting terminated with a vote of thanks to Dr. D. R. Dhar from Calcutta for a discourse on General Medicine.

J. R. Dhar,
Secretary.

BANKURA BRANCH

A largely attended meeting of the members of the medical profession of Bankura was held on

Sunday, the 27th June, 1937, at 9 p.m. to discuss the question of opening a Medical Association at Bankura. Dr. Kali Krishna Mitra, L.M.S., presided on the occasion.

Dr. T. N. Ghosh, Organising Secretary, Bengal Provincial Branch of the I. M. A. spoke briefly on the advantages of joining the Indian Medical Association, which was the only representative body of qualified medical men in India. Dr. Sachin Sen Gupta of Calcutta took part in the discussion which followed and in which many of those present took an active part.

Dr. Durgadas Gupta, B.Sc., M.B., then moved that a branch of the Indian Medical Association be formed at Bankura named " Indian Medical Association, Bankura Branch." The resolution was seconded by Dr. Lakshminarayan Das, M.Sc., M.B., and was passed unanimously.

On the proposal of the Chairman, Dr. Ramgoti Banerji, B.Sc., M.B., was unanimously elected Secretary of the Association.

The meeting then terminated late at night with a vote of thanks to the Chair.

BARUIPUR-RAJPUR (24-Pergs.) BRANCH

A well-attended meeting of the medical practitioners of Baruipur, Rajpur and the neighbourhood, organised by Dr. T. N. Ghosh, Organising Secretary, Bengal Provincial Branch, was held at the Gobindapur Union Board Dispensary on Saturday, the 3rd July, 1937, at 5 p.m. under the chairmanship of Capt. A. Banerjee, I.M.S. (late). It was unanimously resolved that a branch of the Indian Medical Association be formed under the name of Baruipur-Rajpur Branch.

The following gentlemen were elected office-bearers:—

President—Dr. Pulindra Kumar Rai Chowdhury, L.M.F.

Secretary—Capt. A. Banerjee, I.M.S. (late).

Asstt. Secretaries—Drs. H. P. Bhattacharyya, L.M.F., and Shib Das Bhattacharyya, M.B.

Representative to the Central Council—Dr. Pulindra Kumar Rai Chowdhury, L.M.F.

Representatives to the Provincial Council—Dr. H. P. Bhattacharyya, L.M.F., and Capt. A Banerjee I.M.S. (late).

The meeting terminated with a vote of thanks to the Chair.

SARISHA-DIAMOND HARBOUR BRANCH

A meeting of the medical practitioners of Diamond Harbour, Sarisha and the neighbourhood was convened by Dr. T. N. Ghosh, Organising Secretary, Bengal Provincial Branch and was held at Sarisha on Sunday, the 4th July, 1937, at 5 p.m.

It was unanimously resolved that a branch of the Indian Medical Association be formed under the name of " Sarisha-Diamond Harbour Branch of the Indian Medical Association."

The following gentlemen were elected as office-bearers:—

President—Dr. Surendra Nath Bose, L.M.P.

Secretary & Representative to the Bengal Provincial Council—Dr. Kartic Ch. Halder, L.M.F.

MOTIHARI BRANCH

Proceedings of the emergent meeting of the Motihari Branch of the Indian Medical Association held on the 14th May, 1937.

Members present—Rai Bahadur Dr. T. C. Guha (President), Rai Bahadur Thakur Ram Dhari Sinha, L.M.P., Drs. K. B. Sahay, M.B., D.T.M., Saryug Prasad, L.M.P., Banwari Lal, M.B.B.S., (Miss) C. Sigler, L.M.P., Harishanker Prasad, M.B.B.S., and S. K. Verma, M.B.B.S. (Secretary).

Read the letter of the Central Council of the 1st May, 1937. It is resolved that this Branch has not encountered any difficulty in day to day working of the present rules, so we do not propose any new suggestion, amendments, alterations or additions necessary in the present rules, but if any such suggestions, amendments, alterations or additions are thought necessary by the Central Council we have no objection.

T. C. Guha,
President.

S. K. Verma,
Secretary.

SAHARANPUR DIST. BRANCH

In a meeting of the Indian Medical Association, Saharanpur Branch, held on the 29th May, 1937, the following resolution was passed:

" Only those people whose subscription has been paid by the District Branch to the Provincial Branch or the Central Council and whose names have been

entered in the Provincial or Central registers should be considered members and eligible for enjoying the privileges of the membership of the I. M. A.

" Those members whose subscription has not been paid within the first three months of the official year should be regarded to have ceased to be members of the I. M. A."

N. B. L. MATHUR,
Hony. Secretary.

DEORIA MEDICAL ASSOCIATION

The 7th monthly meeting of the year was held on the 6th June, 1937, at 1-30 p.m., at the residence of Dr. I. P. Gupta. The President occupied the chair.

Nearly all the members were present in the meeting. The following resolution was unanimously passed, all standing.

" Resolved that the Deoria Medical Association places on record its deep sense of sorrow at the sad demise of the wife of Dr. Jagat Singh, after a prolonged illness, and conveys its heart-felt condolence to the bereaved husband."

Dr. H. N. Bhatt then read a paper on ' Juxta-pyloric Ulcer ' with special stress on its pathogenesis, morbidity, and treatment added with his own practical experience.

He then cited one case of death from chloroform poisoning acting on degenerated renal system.

The following amendment of I. M. A. Rules 21, 22 and 23, as drafted by the Working Committee of Deoria Medical Association was read and approved by the whole house:

21. " Not less than three months before the Annual General Meeting the Secretaries shall publish serially all the names and qualifications of the members of the different Branches of the Indian Medical Association in the Journal of the Association.

22. " Within four weeks from the date of publication of the names in the Journal, one name for the President and three names for the Vice-Presidents from amongst the names published in the Journal shall be nominated and forwarded by the Branches to the Secretaries, Central Council.

23. The members receiving supports from the largest number of the Branches shall be declared by the Central Council as President and Vice-Presidents for the ensuing year. In case of equality of support regarding the election of President and Vice-Presidents, the Central Council will finally decide the issue."

The Secretary then thanked the President, Dr. Bhatt, for his presenting a copy of " Essential and Commonplace Aspect of Heart Diseases ' to the Association library.

The meeting then came to a close with thanks to the Chair.

Dr. I. P. Gupta was ' At Home ' to the members after the meeting.

S. N. MUKHERJI,
Hony. Secretary.

* * * *

The 8th monthly meeting of the year was held on the 4th July, 1937, at the residence of Dr. H. N. Bhatt, Deoria. The President occupied the chair.

The minutes of the last meeting were read by the Secretary and confirmed. Dr. S. N. Mukherji demonstrated a very uncommon but typical case of Ichthyosis and cited a case of typho-pneumonia with petechial hæmorrhages over the abdomen and thigh. The following resolution was then unanimously passed:

" In pursuance of the recommendations of the Darwin Committee which had been appointed to suggest ways and means to relieve as much as possible the District and Sub-Divisional Officers of their judicial works, the Deoria Medical Association understands that there is a proposal of the Government of the United Provinces to increase the number of Honorary Magistrates in almost every district in these provinces, and in view of this fact, it hereby appeals to the District Magistrate, Gorakhpur and Sub-Divisional Officer, Deoria-Kasia to appoint this time some of the Honorary Magistrates from amongst the competent members of the medical profession, which has, so long, been ignored in matters of these appointments in this district.

Resolved that a copy of the above resolution be forwarded to the District Magistrate, Gorakhpur, and Sub-Divisional Officer, Deoria, for their information and favourable action."

The Secretary then read the letter No. CL/1068, of May 31, 1937, from Dr. Bhupal Singh for the considered opinion of this Branch regarding the resolution No. 8 of the Provincial Council meeting

held on the 14th April, 1937, at Agra. The resolution was supported by the whole house.

The meeting then came to a close with thanks to the Chair.

Dr. Bhatt was " At Home " to the members after the meeting.

S. N. MUKHERJI,
Hony. Secretary.

C. P. & BERAR MEDICAL ASSOCIATION

At an Extraordinary General Meeting of the C. P. & Berar Medical Association, Nagpur, held on Monday, the 26th April, 1937, the following resolution was unanimously passed:

1. Whereas the recent communique of the Government of India anent the re-organisation of the I. M. S. published on the 25th March, 1937, perpetuates the doctrine established by the Lee Commission that British people in services must have British doctors to treat them, and

2. Whereas it perpetuates the system of recruitment to the I. M. S. by nomination with selection instead of introducing pure and simple competition, and

3. Whereas, on the one hand 20 posts in British Military I. M. S. have been increased and on the other 10 posts in the Indian Military I. M. S. have been reduced in spite of the promised Indianisation of the army, and

4. Whereas there is a net increase of 10 Military I. M. S. posts thus leading to extravagance, and

5. Whereas although it ensures Military trained I. M. S. Officers completely, it provides partly Military trained Indian I. M. S. unless the Provinces impose Military liability on their Civil Surgeons and give them periodical Military training,

The C. P. & Berar Medical Association condemns unequivocally the policy adumbrated in the above communique and further resolves that the civil side of the I. M. S. be completely abolished.

G. K. GÂN,
Hony. Secretary.

TINNEVELLY DISTRICT MEDICAL ASSOCIATION

The Tinnevelly District Medical Association held its monthly meeting at Palamcottah on Saturday, the 29th of May, 1937, in the premises of the St. John's College. Members numbering 62 including 3 women doctors were present.

After tea party and music, the meeting began under the presidentship of Lieut.-Col. T. S. Shastry, I.M.S., the President of the Association. The Secretary read the minutes of the last monthly meeting, held at Tiruchendur on Saturday, the 24th of April, 1937, which were passed. He also read the Code of Medical Ethics for the information of the members of the Association.

Dr. M. Shenbagam Pillai of Sivagiri read out the notes of a case of calculus in a female urethra—a rare case.

Dr. P. S. Srinivasan, L.M.P., of the Government Headquarters Hospital, Palamcottah, read out clinical notes on the following interesting cases and these patients were also shown:

1. A case of hydro-pyo-nephrosis.
2. A case of parotid tumour (right cheek).
3. A case of osteomyelitis (prontosil treatment).
4. A case of cancer stomach.
5. A case of large goitre.

The above cases were fully discussed by the members. Thereafter the President brought the meeting to a close by his remarks of each case and summed up the salient and important features of all the cases. He thanked the College Authorities for placing the College Hall at the disposal of the Tinnevelly District Medical Association for holding the meeting.

Thereafter, an excellent dinner brought the happy gathering to a close late at night.

K. RAMA AYYAR,
Secretary & Treasurer.

* * * *

The Tinnevelly District Medical Association held its monthly meeting on Saturday, the 26th of June, 1937, at Papanasam, one of the most sacred places of the District, noted for wild scenery and most charming water-falls.

Members numbering 42 including 3 lady doctors attended.

The meeting began at 9-30 a.m. under the presidentship of Dr. K. Srinivasaraghava Iyengar, L.M. & S., Retired Civil Surgeon. The Secretary read the minutes of the last monthly meeting held at the

Headquarters (Palamcottah) on the 29th of May, 1937, which were passed.

Dr. T. V. Gopala Menon, M.B.B.S., of Ambasamudram, read out an interesting short address on "Penetrating Wounds of the Abdomen." He also demonstrated a case of dextro-cardia to all the members.

Dr. P. S. Srinivasan, L.M.P., of the Government Headquarters Hospital, Palamcottah, read out clinical notes of the following interesting cases:

1. A case of appendicitis.
2. A case of acute inversion of uterus with submucous fibroid.

The specimens in connection with the above cases were also shown.

After detailed discussion by the members Dr. K. Srinivasaraghava Iyengar, L.M. & S., summed up the salient and important features of all the cases. He also narrated briefly his reminiscences about various important cases during his long experience. He offered his cordial thanks to all those members who helped towards the success of the function and thanked Dr. T. V. Gopala Menon, M.B.B.S., for the excellent arrangements.

The members were warned about the prevalence of diphtheria in Tinnevelly as a case was admitted to the Headquarters Hospital two or three days ago and they were requested to be on the look out for such cases.

During the interval there was an arrangement for music followed by an excellent dinner which brought the happy gathering to a close.

Health Exhibition

Under the auspices of the Association in connection with its monthly meeting at Papanasam, a Health Exhibition was arranged at the Catholic School, Uchangulam, at 5-30 p.m. the same day. This was the first time a Health Exhibition was arranged at this place for the benefit of the mill labourers and staff and their families.

The Exhibition was kept open till late in the evening and also for the following day. The exhibits consisted of posters relating to cholera, tuberculosis, malaria, smallpox, fly-danger, venereal diseases, etc.

K. Rama Ayyar, M.B.B.S.,
Secretary & Treasurer.

CENTRAL COUNCIL

Proceedings of the XLII Meeting of the Central Council of the Indian Medical Association held at Calcutta on the 23rd July, 1937.

Present:—Dr. C. C. Bose (Chairman), Dr. S. C. Chatterjee, Dr. B. C. Chatterjee, Dr. A. K. Sen, Dr. K. S. Ray, Dr. D. P. Ghosh, Dr. T. N. Ghosh, Capt. J. R. Dhar, Dr. A. D. Mukherji, Dr. J. P. Chaudhuri, Dr. N. R. Sen Gupta, Capt. P. B. Mukherji, Dr. B. K. Ghosh and Dr. R. C. Sen.

1. Read letters from Dr. B. N. Vyas, Dr. Jivraj Mehta and Capt. H. N. Shivapuri regretting inability to attend the meeting.

2. Proceedings of the last meeting were confirmed.

3. Accounts for the period 1-1-37 to 31-5-37 were placed and noted.

In this connection read a letter dated 3-7-37 from the Jhansi Branch enquiring what steps were taken to recover the amounts recommended by the Journal Committee to be written off and whether it was possible to realise the sum of Rs. 43-13-0 from Messrs. M. L. Bose & Co., which was not yet time-barred. The Secretary in charge of the Journal reported as follows:—

(i) *Great Asiatic Medicine & Stores, Ltd.*—Outstanding dues Rs. 467-8-0 (1930-31).

No legal steps were taken as the position of the Journal was not so secure at the time—litigation might have proved detrimental to the popularity and progress of the journal.

(ii) *A. J. Pandit & Co. A/c. A. Amin & Co.*—Outstanding Rs. 150-0-0 (1934-35).

The reminder on 14-3-36 addressed to the Agent was returned undelivered. On writing to A. Amin & Co. on 8-8-36, we were informed that full payment was made to Mr. Pandit and they were in search for him as they had also some complaints against him. The Secretary, Bombay Branch of the Indian Medical Association was requested to help in the realisation of the amount. He enquired and found that Mr. Pandit had defrauded quite a number of people and his whereabouts could not be found. Under the circumstances he was unable to do anything in the matter.

(iii) *M. L. Bose & Co.*—Outstanding Rs. 43-13-0 (1935).

The advertisements was published after the expiry of their contract in anticipation of renewal but the party did not renew the contract. The party when requested for payment refused on the ground that the advertisement was published after the expiry of their contract.

(iv) *Bhubaneswar Chemical Works*—Outstanding Rs. 68-0-0 (1931).

In reply to the reminders the party gave us to understand in their letter dated 9-5-34, that they were unable to pay as the bills concerned were for advertisements published after the expiry of contract.

The contract was a verbal one, so no legal steps could be taken.

(v) *S. K. Chakravarti Ltd.*—Outstanding against old bills Rs. 139-6-0 (1931)—Time-barred.

Resolved that the outstanding advertisement revenues of the following firms be written off as being unrealisable as recommended by the Journal Committee:

Great Asiatic Medicine & Stores Ltd	Rs. 467	8	0
A. J. Pandit & Co. A/c. A. Amin & Co.	Rs. 150	0	0
M. L. Bose & Co ...	Rs. 43	13	0
Bhubaneswar Chemical Works ...	Rs. 68	0	0
S. K. Chakravarti Ltd. ...	Rs. 139	6	0

Read a letter dated the 21st April 1937, from the Secretary, Jubbulpore Branch, intimating that they could not realise subscriptions from 8 members during the year 1935-36, they having resigned, and requested that the contribution payable to the Central Funds in respect of these members be written off. Resolved that the outstanding contribution of the Jubbulpore Branch in respect of 8 members for the year 1935-36 be written off as requested by the Branch.

Read a letter No. 1086 dated the 7th June, 1937, from the Secretary, U. P. Provincial Branch, sending a further sum of Rs. 232-9-4 in respect of arrear contribution of Allahabad Branch for 1934, 1935 and 1936 and contribution for the year 1936-37, with the recommendation that the sum of Rs. 194/- being the arrears for the years 1934 to 1937 in respect of Allahabad Branch be written off as unrealisable. Resolved that Rs. 194/- be written off as contribution unrealisable from Allahabad Branch as recommended by the U. P. Provincial Branch.

In this connection the Secretary placed before the meeting a statement of arrears of contribution of the different branches.

4. With regard to the suggestion of allowing travelling allowance to the Secretaries for attending Central Council meetings, a question was raised by some branches that if the Secretaries are to be paid the T. A. it should also be paid to all the members of the Central Council attending the meeting. In view of the expense involved in that case it was felt that the cost to the Association would be prohibitive.

5. Resolved that the formation of the new branches at Rawalpindi and Peshawar in Punjab, Monghyr (Bihar), Gadag (Bombay), Contai, Punian, Howrah, Hooghly-Chinsura-Chandernagore, Jessore, Khulna, Serampore, Ranaghat, Naihati, Midnapore, Bankura, Baruipur-Rajpur and Sarisa-Diamond Harbour in Bengal; and affiliation of the Ramnad Medical Association be recorded. This brings the total number of branches in the different provinces up to date as follows:—

U. P.	...	28
Bengal	...	19
Punjab	...	14
Bombay	...	6
Bihar	...	4
Madras	...	2
C. P.	...	2
Sind	...	1
Delhi	...	1
Hyderabad	...	1
Total	...	78

Letter dated the 13th April, 1937, from Dr. G. V. Deshmukh and correspondence of the Bombay Branch regarding the arrears of subscription of Dr. Deshmukh were discussed by the Council. It was resolved that a committee consisting of the following members be appointed to go into the matter:—

President, I. M. A.
Dr. Bhupal Singh (Convener).
Dr. R. A. Amesur.
One of the Secretaries of the Bombay Branch.

7. With regard to the Government of India Communique dated the 25th March, 1937, regarding scheme of re-organisation of the Indian Medical Service, the Central Council requested the different branches to hold protest meetings and meetings condemning the action of the Government of India were accordingly held by several branches. This meeting of the Central Council of the Indian Medical Association also strongly condemns the new resolution of the

Government on the future I. M. S. cadre, which reduces still further the number of Indians in the service, and though it reduces the pay of Indians yet those of Europeans are still further increased, the system of recruitment by nomination is still being retained and the resolution adds insult to injury in implying that the Indian medical men are professionally inferior to Europeans. The Central Council considers this scheme most retrogade, reactionary and against the professed policy of Indianisation of the service. Resolved further that copies of this resolution be forwarded to the Secretary of State, Secretary, Government of India and Chief Ministers of the different provinces.

8. Resolved that the suggestions of the Moradabad Branch for the increase of sources of income of the Association be forwarded to the U. P. Provincial Branch for consideration.

9. With regard to the question of unemployment among medical profession resolved that those branches which have not sent in their suggestions yet be reminded to forward practical suggestions in this regard without further delay.

Resolved further that the Provincial Branches wherever they exist be requested to constitute sub-committees to tackle the problem of unemployment and to submit definite scheme before their respective Provincial Councils and at the same time forward a copy of the report to the Central Council.

Resolved further that a sub-committee of the Central Council be constituted with the following members to deal with the question of unemployment:

Dr. T. N. Ghosh (Calcutta).

Dr. B. C. Chatterjee (Hooghly).

Capt. J. R. Dhar (Jessore).

Dr. J. P. Chaudhuri (Calcutta).

Dr. K. S. Ray (Calcutta).

10. Read a letter dated the 26th June, 1937, from the Secretary, Bengal Provincial Branch. Resolved that a grant of Rs. 250/- be made to the Bengal Branch to be used for travelling allowances, etc., for organising branches in the province, as was done in the case of U. P.

11. Read a letter from Mr. Shib Nath Banerjee, M.L.A., Bengal, enclosing a copy of the Bill on Health Insurance in the Province of Bengal and inviting the views of the Indian Medical Association thereon. In view of the fact that as similar Bills are likely to be moved in the different provincial legislatures, resolved that the Bill be circulated to the different branches to elicit opinion and to take such action as may seem justifiable and also to report to the Central Council.

C. C. Bose,
Chairman.

K. S. Ray,
Jt. Hon. Secretary.

CALCUTTA BRANCH

At a meeting of the Executive Committee held on the 22nd July, 1937, the attention of the Committee was drawn by some members to the following advertisement appearing in some of the local leading newspapers:—

"Wanted—For the Chittaranjan Seva Sadan—Four Resident Junior House Surgeons for six months from 1st September, 1937, on Rs. 40/- per month out of which Rs. 20/- will be deducted for board and lodging.

None need apply who is not an M. B. of the Calcutta University with special aptitude in Obstetrics and Gynæcology.

Appplications will be received by the Secretary, Chittaranjan Seva Sadan, 36, Wellington Street, Calcutta, upto the 21st July, 1937.

As the above advertisement involved certain general principles regarding the terms of appointment of medical men, the Executive Committee carefully discussed the whole question and the following resolution was passed unanimously:—

"After carefully considering the advertisement, the Executive Committee condemns the terms of the appointments and feels that this is nothing but exploitation of the young medical graduates and derogatory to the status of medical men.

It further resolves that a copy of this resolution be sent to the authorities and to the press and medical journals for publication."

T. N. Ghose,
Hony. Secretary.

MADRAS BRANCH

Proceedings of the General meeting of the Madras Branch of the Indian Medical Association held on the 29th April, 1937.

Resume of the Annual Report.

During the year ending on the 29th April, 1937, there were 43 members on rolls.

Meetings. There were four general body meetings during the year, in the first two of which, election of office-bearers and passing of rules and regulations of the branch, took place. At the third meeting, Dr. U. Rama Rao's draft bill for establishing a College of Physicians and Surgeons in India was discussed and passed. At the fourth meeting Dr. U. Krishna Rao spoke on the " Organisation of the Medical Profession."

The following office-bearers were elected for the ensuing year:

President—Dr. V. D. Nimbkar, F.R.C.S.E.

Vice-Presidents—Drs. E. V. Srinivasan, M.B., C.M., and D. V. Venkappa, L.M.P.

Secretaries—Drs. M. Sanjiva Rao, M.B.B.S., and K. B. Bhujanga Rao, L.M.P.

Treasurer—Dr. U. Krishna Rao, M.B.B.S.

Committee Members—Drs. V. C. Sudarshanam, L.M.P., B. Venkat Rao, L.M.P., M. R. Bail, M.B.B.S., U. Rama Rao, L.M.P., P. S. Varadachary, M.B., B.S., F.I.M., Ramanjulu Naidu, L.M.P., K. L. Narain Rao, M.B.B.S., C. P. Viswanatha Menon, M.B., F.R.C.S. (Eng.), A. Viswanathan, L.M.P., P. S. Kuppusamy, M.B.B.S., and Y. Venkatramayya, M.B.B.S.

ALL-INDIA MEDICAL CONFERENCE

Dr. U. Rama Rau spoke about the invitation to the All-India Medical Conference for holding its session in Madras this year during X-mas, and informed the members that several Medical Associations and prominent medical men of Southern India had enthusiastically supported the idea and promised their co-operation.

The following resolution moved by Dr. U. Krishna Rau was unanimously adopted:

> " The Madras Branch of the I. M. A. authorises its Secretaries to communicate with the Secretaries of the sister Medical Associations in the city and Presidency with a view to get their co-operation in connection with the All-India Medical Conference during the X-mas week this year. The replies received may be considered at a special meeting of the Executive Committee of this Branch."

With a vote of thanks to the Chair the meeting closed.

M. SANJIVA RAO,
Jt. Secretary.

AMBALA BRANCH

At a meeting of the Ambala Branch held on the 3rd June, 1937, at the Medical Hall of Dr. A. M. Deva under the presidentship of Dr. Milkhi Ram, the following condolence resolution was passed:

> " This meeting of the Indian Medical Association, Ambala Branch, expresses its grief at the sad and untimely death of Dr. Ram Saran Khosla, President of the Association, and tenders its sincere condolence to Mrs. Ram Saran Khosla and also sympathises with his brother and members of the family in their recent bereavement."

MEDICAL NOTES AND NEWS

THE INDIAN POPULATION AND FAMILY HYGIENE CONFERENCE

It is proposed to hold the Second Indian Population Conference and the First Family Hygiene Conference at Bombay in the 2nd week of January (about the 12th), 1938. There will be a combined public session after which the Conference will dissolve into the following sections:

POPULATION:

(1) Economics.
(2) Sociology and Anthropology.
(3) Nutrition.
(4) Vital Statistics.

FAMILY HYGIENE:

(1) Maternity and Child Welfare.

(2) Birth Control and Sterilization.

(3) Medical Problems including Sterility, Abortion, and Venereal Diseases.

(4) Problems of Sex including Sex Education and Sexual Perversion.

(5) Housing and Health.

The papers to be read at the Conference and the Presidential addresses, general and sectional, will be printed and made available to the delegates and members at the opening of the Conference. The names of the General and Sectional Presidents will be published in due course.

Papers on any subject coming under the above sections are invited. It will facilitate the work of the Conference if contributions are received *not later than the 1st November, 1937.*

Details may be obtained from the Hony. Secretaries Dr. A. P. Pillay, O.B.E., M.B.B.S., and G. S. Ghurye, M.A., PH.D.

DARBHANGA RESEARCH SCHOLARSHIP

" The Darbhanga Research Scholarship " for the year 1937 will be awarded for the purpose of encouraging original research in Medicine in its various branches, and all Graduates and Licentiates in Medicine and Surgery of the University of Calcutta are eligible to compete for the same. The value of the scholarship is Rs. 50/- a month tenable for one year only.

The terms and conditions of the award of the scholarship will be found in the University Calendar for the year 1937, pages 268-269.

Applications with full particulars, as required under the rules, should be submitted so as to reach the Controller of Examinations, University of Calcutta, not later than 31st October, 1937.

LADY TATA TRUST SCHOLARSHIPS

The Trustees of the Lady Tata Memorial Trust announce the awards of the following Indian Scholarships and Grants for the year 1937-38.

For scientific investigations having a bearing on the alleviation of human suffering.

Mr. Sarashipada Bose, M.SC., (Dacca).

To work on available carbohydrates of Indian foodstuffs and their biological value.

Under the direction of Dr. K. P. Basu, D.SC., PH.D. (Munich), Biochemist, Dacca University, Dacca. (Scholarship of Rs. 150 per month—first year's award).

Mr. K. Ganapathi, B.A. (Madras), M.SC. (Annamalai University).

To work on chemotherapy in tuberculosis.

Under the direction of Professor P. C. Guha, D.SC., Professor, Department of Organic Chemistry, Indian Institute of Science, Bangalore. (Scholarship of Rs. 150 per month—first year's award).

Mr. K. Venkata Giri, M.B. (Madras), M.SC. (Calcutta), A.I.I.S. (Bangalore).

To work on the phosphorus availability of Indian foodstuffs and the physiological role of phosphatase.

Under the direction of Professor V. Subrahmanyan, D.SC., F.I.C., Professor of Biochemistry, Indian Institute of Science, Bangalore. (Scholarship of Rs. 150 per month—first year's award).

Mr. Kesava Pillai Ramkrishna Nair, B.SC. (Madras).

To work on the physiological role of vitamin C.

Under the direction of Dr. M. Damodaran, Director, Biochemical Laboratory, University of Madras, Madras. (Scholarship of Rs. 150, per month—first year's award).

Mr. Sadashiva Rao, M.A., (Madras).

To work on Metabolism of Past. pestis.

Under the direction of Lt.-Col. S. S. Sokhey, M.D., I.M.S., Director, Haffkine Institute, Parel, Bombay. (Scholarship of Rs. 150, per month—first year's award).

ANTISEPTICS IN MIDWIFERY

In the " Interim and Final Reports of the Departmental Committee on Maternal Mortality and Morbidity, Ministry of Health, 1930 and 1932 " attention has been directed to the importance of efficient disinfection of the hands of the attendant and of the patient's skin. The view has been expressed "that lysol as used is insufficiently safe and reliable to be generally commended as an antiseptic in midwifery, either for the hands or for the patient's skin." Dr. Donald, who was a member of the Departmental Committee, has called attention to the need for adequate disinfection and to the difficulties of carrying out rigid aseptic measures in domiciliary midwifery cases.

From inquiries made at all the maternity units visited and from interviews with hundreds of midwives during the investigation it was evident that insufficient attention is given, in many instances, to careful disinfection of the hands of the attendant. The general practice in maternity units is to use perchloride or biniodide of mercury solution for the disinfection of the hands and for swabbing of the patient's skin. The usual disinfectant employed by midwives is lysol, although the use of dettol is becoming increasingly frequent. The strength of the solution of the disinfectant used appears to vary within wide limits, and it was frequently stated that a small quantity is "tipped into a bowl of water." Each Local Supervising Authority should take proper steps to ensure that every midwife is provided with an antiseptic of proved efficiency for the disinfection of her hands and of the patient's skin. They should also ensure that every midwife is conversant with the use of antiseptics, the strength in which they should be used, and how to make up solutions of these strengths.—*Extract from the Ministry of Health " Report on an Investigation into Maternal Mortality,"* April, 1937.

THE ARMY MEDICAL LIBRARY AND MUSEUM

In the Army Medical Library and Museum in Washington, D. C., are housed some of the finest collections available in the field of medicine. The library now contains some 400,000 bound and unbound books and approximately 600,000 pamphlets and periodicals. Included in this material are about 450 incunabula of the total 600 in existence. This library and its Index Catalogue have been recognized everywhere as among the greatest of bibliographic facilities in the world. The House of Delegates of the American Medical Association has repeatedly gone on record as favouring a new building to house these invaluable collections. The present building was constructed in 1887 and the contents of both the library and the museum have outgrown their accommodations. Whether the Army Medical Library and Museum building is erected on the site of the Army Medical Centre to round out that institution, which includes the Walter Reed General Hospital, the Army Medical, Dental and Veterinary Schools and the Biological Laboratory, or is to adorn one of the beautiful parkways or drives elsewhere in Washington is really not the vital consideration. The need for a new building is pressing. The construction of such a building would give opportunity for modernizing the equipment and making the materials far more available than they are now. It would serve as a monument to medicine in consideration of its services to human welfare. (*Journal of the American Medical Association*, May 15, 1937, page 1718).

SOME NOTABLE EVENTS IN THE HISTORY OF MEDICINE

The year 1937 is the anniversary of a number of notable events in the history of medicine. Of these events, the earliest occurred 850 years ago (1097) and was the recording in an ancient Anglo-Saxon chronicle by some person with an observant mind, whose identity has long been shroued in the mists of antiquity, of the fact that there exists a definite correlation between the scourge of widespread famines and the prevalence of epidemic fevers. In 1137 the court jester, Rahere, succeeded in arousing enough interest and collecting sufficient monetary contributions to provide for the founding of St. Bartholomew's Hospital. One hundred and fifty

years later Poland suffered the worst calamity inflicted upon that long-suffering country through the Mongol invasion—an epidemic of the mysterious " plicapolonica," or " plague of the malted hairs."

In 1537 Vesalius graduated from Basle University, and Dryander, whose real name was Johann Eichmann, published his classic anatomia. Fifty years later Giulio Cesare Aranzio gave his famous first description of deformed pelvis. In 1637 the Royal College of Physicians of London published the first official report on public health in England, and half a century afterwards Johann von Muralt sent to press the text of his classic lectures on anatomy given at Zurich University. The year 1737 is marked by two events of importance in the history of medicine, the founding of the Royal Medical Society of Edinburgh, and the epidemics in England of influenza and epizootic cough, later described by the great authority on fever, John Huxham.

Abroad, Paolo Mascagni published his Atlas of Lymphatics: Paulitzky introduced into the practice of obstetrics the employment of ergot; Antoine-Baurent Lavoisier constructed the gasometer; and the Guild of the Bathkeepers, an organization which to-day seems to our minds almost ludicrous, but which played a real part in the hygienic history of its times, was abolished by the municipality of Wurzburg. The year 1837 was notable. Abraham Colles formulated and stated the law of maternal immunity to syphilis. The earliest descriptions were given of endocarditis by Jean Baptiste Bouillard; of the epithelial tissues by Jacob Henie, and of peliosis rheumatica by Johann Lucas Schonlein. In the same year Francois Majendie made his famous investigations of the cerebrospinal fluid, and Gustav Magnus first demonstrated the respiratory functions of the blood. A school of medicine and surgery was opened in Cairo, Egypt, and the Rush Medical College founded in Chicago. A combined epidemic of smallpox and typhoid fever devastated England for three years, and an epidemic of cerebrospinal meningitis began to spread over European countries from a source of infection in Bayonne, France. Last but not the least from a health and sanitary point of view, New York began its first water works on a grand scale—the construction of the 41 miles of the old Croton aqueduct, which was completed in 1850, and brought with it numerous conveniences and improved health conditions to the robust adolescent city, as well as, according to an old theory the medical validity of which will never be proved, that plague of all New York apartment dwellers, the so-called " croton bugs," is still with us after a century of struggle against them.

Important medical events of 1887 include the discovery of the coccus of Malta fever by Sir David Bruce, and of the meningococcus by Anton Weichselbaum; Wagner von Jauregg first proposed treatment of fever by counter-infection; George Edward Fell introduced into medical practice intratracheal anæsthesia; Harvey Reed made the first successful suture of the pericardium; Sir John Simon began publication of his famous reports on public health; Jacques-Arsene introduced into medical practice the use of high frequency currents; Howard Kelly perfected the procedure of hysterorrhaphy; Sir William Richard Gowers and Sir Victor Horsley performed the first wholly successful operation on the spinal cord; Henry Sewall succeeded in immunising pigeons against rattlesnake venom; Alfred Kast and Otto Hinsberg compounded the drug phenacetin; the Sloane Maternity Hospital was opened in New York City; poor law medical officers in England were abolished; the American Orthopædic Association was founded; Tokio, Japan, opened its Institute of Legal Medicine; the Berlin Psychological Association was organised; and, last out not the least, Dorothea Lynde Dix died after a lifetime of effort for the better care and treatment of the mentally diseased.

In celebration of several of the more important of these medical anniversaries of 1937 a number of events have been planned, among them, the publication of at least two biographical memoirs of Dorothea Lynde Dix. (*The Medical World*, June 4, 1937, page 496).

BEREAVEMENT TO DR. DA'SILVA

Much sympathy is felt with Dr. George Da'Silva, President of the Jubbulpore Branch of the Indian Medical Association and a past Vice-President and a member of the Central Council of the Indian Medical Association and prominent public worker of Jubbulpore, at the sad and sudden death of his wife, Mrs. Da'Silva, which took place on the 14th July last at her residence, on the North Civil Lines, Jubbulpore.

The late Mrs. Da'Silva was a very religious-minded lady. She leaves behind her two sons, one

daughter and a large circle of friends to mourn her loss.

The funeral was largely attended by the public of the town including the members of her community, and National Scouts and the Congressmen.

PROVINCIAL BOARDS OF HEALTH

The Central Board of Health concluded its sitting on June 23 last after passing resolutions *inter alia* expressing the opinion that research in nutrition should be carried on and that the Central Government should spend more money on it.

The meeting also accepted several suggestions made by the delegates including the following:—

There should be greater co-ordination between the railways, local authorities and the army in regard to the control of malaria.

There should be a systematic health education of school teachers and children in future; and

Greater stress should be laid on public health in the curriculum of medical schools and colleges.

Health Bureau

That in order to promote co-ordinated effort in preventive medicine between the medical and public health departments, the Board recommends the establishment of a Central Health Board or a committee at the headquarters of each province and a health bureau in each district.

That all Governments should form provincial public health services; require municipalities and local boards to appoint medical officers of health; lay down suitable conditions of recruitment, qualification and terms of service of health officers.

The Board further recommends that where Local Governments do not possess these powers the necessary legislation should be passed with the least possible delay. The Board is of the opinion that for the development of public health organisations and formulation of public health schemes in municipalities and district boards adequate funds should be allowed for the Provincial Governments.

The Central Government should set aside adequate funds for nutrition research and Provincial Governments should send medical and health officers to Coonoor for training in nutrition.

Quinine Supplies

Regarding quinine, the Board considered that the policy should be directed towards making India self-supporting and welcomed the proposal of the Indian Research Fund Association to institute an inquiry by an officer experienced in cinchona cultivation in association with the soil chemist on:

(a) What further areas in India are suited for cinchona cultivation; and

(b) What would be the cost of production in such areas.

The Board further considered that the price at which quinine is sold at present in India is too high as it is greatly in excess of the cost of production; that producing Governments in India should not regard the production of quinine as a source of profit —*Associated Press.*

CONTROL OF IMPORTED DRUGS

A bill to control the imported drugs will be presented to the Central Legislative Assembly during the autumn session. The proposal is to have the bill examined by a select committee of the house and then pass it. The bill has been based on the recommendations of the Chopra Committee.

The proposal for control of the imported drug is based on grant of licences on a payment of fees to the firms which import drugs. Their samples would be tested by laboratories whose labours would be rewarded from the payment received from license fees. These laboratories would issue certificates on the strength of which the customs authorities would permit the delivery of drugs certified to be according to the prescription stated in the label. Should the Customs authorities discover that the rule has been broken, a very heavy penalty in the shape of fine will be levied on the importers of such drugs. It is thus hoped that the evil will be checked, but the central authorities hold that the adulteration of drugs or misbranding them occur largely after their import. The control of such practices is not a central subject and it is in this regard that a Provincial Government's action is called for.—*Tribune*, July 18, 1937.

INDIAN SCIENCE CONGRESS

Acceptances are pouring in from members of the British Association for the Advancement of Science

who have been invited to attend the Silver Jubilee meetings of the Indian Science Congress which are to be held in Calcutta from January 3 to January 9 next. It is felt by members of the Congress to be a great honour to their Association to have the British Association represented, and especially so largely represented, at their Silver Jubilee. Professor the Hon. Lord Rutherford of Nelson, O.M., D.SC., LL.D., PH.D., F.R.S., Cavendish Professor of Experimental Physics in the University of Cambridge, will preside at the joint deliberations.

The general body of the British Association delegates will arrive in Bombay by the S. S. Cathay on December 16 and will be welcomed by the University of Bombay on behalf of the Indian Science Congress Association. The University will hold a reception in their honour on the afternoon of December 16 and the delegates will visit the Elephanta Caves on the following day.

Other members of the delegation are to arrive subsequently and in time for the Jubilee meetings in Calcutta. It is expected that about 100 scientists from Great Britain and a number from other countries will be coming for the meetings.

Visit to Northern India

The British Association delegates will, after a day's halt in Bombay, proceed in a special tourist train upon a visit to Northern India. The first visit after Bombay will be to Ajanta in the Nizam's Dominion. They will leave their special train at Jalgaon and drive the remaining 45 miles to the famous Buddhist temples by car.

From Jalgaon the tourists will proceed in their train to Sanchi where they will visit the great Buddhist *Stupas*. Thence they proceed to Agra and Delhi and thenceforward in turn will see Dehra Dun and Benares, where there will be a reception by the University and probably a special University Convocation, and Sarnath, Calcutta being reached on the morning of December 27. The tourists will thus be kept busy throughout Christmas Day.

Between December 27 and January 1 their programme includes excursions to the Bengal coalfields, to Tatanagar, to Darjeeling and to the ancient Gaur, the Sundarbans and the Assam oil fields.

Tour of South India

On the conclusion of the meetings in Calcutta, the delegation will proceed by special train on a tour in Southern India, where they will visit Madras, the Kolar Goldfields and Bangalore. They are due again to be in Bombay upon their homeward journey on January 15.

The scientific discussion to take place at the joint meetings of the two scientific associations in Calcutta have been arranged in some score of sections. No fewer than 13 distinguished scientists in India have been chosen to preside over different sections. There is also an imposing list of recorders, sectional correspondents and local sectional secretaries.

Papers to be read at the session can only be submitted by ordinary or full session members, or through ordinary members, but people desiring to become members can easily obtain their desire by sending in a subscription of Rs. 10 with applications for membership to the General Secretary, Indian Science Congress Association, care of the Geological Survey of India, 27, Chowringhee, Calcutta.

Jubilee celebrations are costing the Indian Science Congress Association a good deal of money and the Association are greatly hoping that cultured and well-to-do members of the public will help them with donations.

I. M. S. PROVISIONS

The following extracts from the London Gazette, dated the 20th April, 1937, are published for general information:—

India Office,
20th April, 1937.

George R. I.,

Whereas we deem it expedient with effect from the commencement of part III of the Government of India Act, 1935, to amend the Rules for the promotion and precedence of our Indian Medical Service contained in the warrant of His late Majesty King George V, dated the 7th August, 1929, as amended by his further warrants dated respectively the 8th October, 1931, the 26th June, 1934, and the 1st September, 1935;

And whereas, in pursuance of the provisions of the said Act, the 1st April, 1937, has been appointed as the date for the said commencement;

Our will and pleasure is that, with effect from the said date, the above recited warrants shall be revoked and in their stead the following provisions shall apply:—

(1) The substantive ranks of officers of our Indian Medical Service shall be as follows—

Major-General, Colonel, Lieutenant-Colonel, Major, Captain and Lieutenant.

The Director-General of our Indian Medical Service shall hold the substantive rank of Major-General or when approved by our Secretary of State for India the substantive rank of Lieutenant-General.

(2) A Captain with at least six years' service, a Major or a lieutenant-Colonel may be promoted to the next higher rank by Brevet for distinguished service in the field or for meritorious and distinguished service of an exceptional nature other than in the field.

(3) With a view to maintaining the efficiency of the service officers of our Indian Medical Service shall be placed on the retired list when they attain the following ages:—

Major-General, 60.
Colonel and Brevet-Colonel, 57.
Lieutenant-Colonel and Major, 55.

but a Lieutenant-Colonel who entered the Service before the 1st May, 1911, and who has been specially selected for increased pay may if he attains the age of 55 years before he completes 27 years' service for pension be retained until completion of such service.

(4) An Officer who may retire on pension before completing 30 years' service shall be liable till he attains the age of 55 to be recalled to duty in case of emergency.

(5) Six of the most meritorious Officers of our Indian Medical Service on the Active List shall be named our Honorary Physicians and Honorary Surgeons and they shall relinquish such appointments on retirement. On appointment as one of our Honorary Physicians or Honorary Surgeons, an Officer under the rank of Colonel in our Indian Medical Service may be promoted to the Brevet rank of Colonel.

It is our further will and pleasure that this our Warrant shall be administered and interpreted by our Secretary of State for India, who shall be the sole and standing authority upon the matters herein contained.

Given at our Court at St. James' this twelfth day of April, 1937, in the first year of our Reign.

By His Majesty's Command.

ZETLAND.

BOMBAY MEDICAL COUNCIL

Notice to the Electorates constituted by sub-section (c) and sub-section (d), respectively of section 2 (2) of the Bombay Medical Act VI of 1912 as amended by Bombay Act No. III of 1916.

Whereas in section 3 (1) of the Bombay Medical Act (Bombay VI of 1912), it is laid down that the members of the Medical Council shall hold office for a term of five years, and whereas the term of office of the existing six elected members of the said Council expires on the seventeenth day of September, 1937.

Now therefore in accordance with rule 11 of the Rules of the Bombay Medical Council, approved by the Governor of Bombay in Council and published in Bombay Government Notification (General Department) No. 6773, dated the 22nd September, 1913, the two electorates mentioned below are required to elect members in the room of the six elected members whose term of office expires on the seventeenth day of September, 1937.

Under sub-section (c) of section 2 (2) of the Bombay Medical Act, 1912, as amended by Bombay Act No. III of 1916, four members are to be elected by the Doctors, Bachelors and Licentiates of Medicine and the Masters, Bachelors and Licentiates of Surgery of the University of Bombay who are registered under the Act.

Under sub-section (d) of section 2 (2) of the Act, two members are to be elected by the medical practitioners who are registered under the Act and who are not Graduates in Medicine or Surgery or Licentiates in Medicine and Surgery of the University of Bombay.

Any person who is qualified for election to the Council under section 2 (2) of the Act may be nominated as a candidate for election either under sub-section (c) or under sub-section (d) of section 2 (2) of the Act.

Candidates qualified for election must be proposed and seconded by persons qualified as electors, *i.e*, by persons borne on the Bombay Medical Register on the 10th August, 1937; no elector shall propose or second the nomination of more persons than are required to fill up the vacancies. If more nominations than are required to fill up the vacancies are subscribed by the same elector, all nominations subscribed by him shall be void.

Every proposal for nomination must be in writing and must be signed by the proposer and seconder and sent by post or otherwise so as to reach the Returning Officer at the office of the Bombay Medical Council, 19, New Marine Lines, Bombay, not later than Thursday, the 12th day of August, 1937.

Thursday, the 19th day of August, 1937, has been fixed as the date for the issue of voting papers to

electors. Voting papers should as far as possible be despatched so as to reach the Returning Officer by 12 noon on Friday, the 10th September, 1937.

Friday, the 10th day of September, 1937 (3 p.m.) has been fixed as the date for the counting of votes at the office of the Bombay Medical Council, 19 New Marine Lines, Bombay.

The Electoral Roll prepared in accordance with rule 12 (1) of the Rules of the Bombay Medical Council can be seen at the office of the Council on any week day during office hours.

RECOGNITION OF MEDICAL DEGREES

The General Medical Council of Great Britain have recognised for registration the medical qualifications of the Calcutta University granted on or after October 16, 1936, the date on which the medical Inspectors of the Medical Council of India completed the re-inspection of the Carmichael Medical College and Hospital, and declared that the facilities provided by the College might be considered adequate.

Consequent on the separation of Burma the Executive Committee of the General Medical Council have been advised that any application for the recognition of diplomas granted by the Rangoon University should in future form the subject of direct communication between the authorities of the University and the General Medical Council. It is understood that the General Medical Council are taking steps to invite the attention of the authorities of the Rangoon University to the appropriate procedure.

CORRESPONDENCES

The Editor is not responsible for views expressed in these columns.

MEDICAL LIFE ASSURANCE

To The Editor,

Journal of the Indian Medical Association.

Dear Sir,

It is with deep interest that I am following the debate started by Dr. Cursetji regarding fraudulent and shady practices in the Insurance Medical Examination. As an Insurance Examiner of more than 15 years' standing, I beg to record some of my views in the matter.

I am also fully aware that some agents and organisers always take unfair advantage of the fact that we examiners have to get cases only through them. And I fully appreciate the value of the suggestions made by your correspondents in the June issue as to what the Insurance Companies should do, so that the examiners can remain out of the clutches of the agents and organisers. But there is no denying the facts, neither have your correspondents done so, that there is grim truth in Dr. Cursetji's accusations—that medical examiners, being members of the most honourable profession, sometimes, if not always, forget the dignity of their profession and stoop so low as to become mere instruments in the hands of the agents, to turn traitors to the Insurance Companies from whom they receive money and in return supply them with false reports.

Ignorance has its excuses and can only be pitied but cannot be called criminal. But the other things such as keen competition, low scale of fees etc., can never be put forward as excuses for the crime of being indifferent to one's duty. " Do it well or not at all " should certainly be our principle. It is doubtful whether the suggestions of your June correspondents will be agreeable to the Insurance Companies probably because of the inconvenience thus caused to the agents who are the life of the company, necessary delay in completion of business, expenses of appointing several salaried examiners and so on. But why at all ask the companies to alter their long existing custom in order to mend our conduct? Revision of rules may be felt necessary from various points of view; but that it is only necessary for our reformation—is this not humiliating to our profession? Are we ourselves so weak as not to be able to cope with the agents who want to gain their own ends at our costs? Can we not, by offering our united front, shake off the unhealthy influences of the agents and organisers? If they find every one of us equally strict in our principle, they will certainly not dare to make any undue requests to the examiners and there being no one to be in hand and glove with them, their cases are sure to be equally distributed to all the examiners without the Chief Medical Officers having to do anything in the matter. Apart from the question of morality in the matter, it is also not safe for an examiner to make mis-statements in his report. The following are apt to be forgotten when obliging an agent in that way:

(1) The agent who prevails upon the examiners to distort facts in the report in order to have a bad case passed as 1st class, gets safely away with his full share of commission; while the misdeed of the examiner in black and white is kept in the company's file for several years, most often to be found out in very near future either through a short examination in the same company or from examination in some other company; and when found out, the agent puts everything on the shoulders of the poor examiners.

(2) Most of the Insurance companies are members of the association of which it is a rule that a company on getting the report of an uninsurable or sub-standard case, should issue cards to all other companies belonging to the association, informing every one of them the name and address of the party who has been found uninsurable or sub-standard by that company. It is the duty of the new business department of every office to diligently search for these cards whenever a new medical report reaches it and if any is found in that name and address, the case in question is subjected to re-examination and the fraud, if any, is found out.

(3) Most of the examiners have an idea about the proportion of height and weight or have got a

height and weight list but they cannot have any correct idea about the chest and abdomen measurements in relation to those heights and weights and no formula has been worked out regarding this. But all the Head Offices have charts made from observation of 100,000 cases or more showing chest and abdomen measurements in proportion to every height and weight. These charts are surprisingly accurate. Every medical report is compared to the chart and any considerable departure from it calls for a re-examination of the case and the fraud or carelessness which is equally bad, is found out.

By sending in a true report of a bad case in spite of the agent's importunities the examiner loses nothing beyond temporary suspension of custom from that agent. The examiner's position and reputation with the company remains safe and he gets his fee all right. A respectable Insurance Company, instead of even grudging payments of the medical fee, is always grateful to the examiner who has thus been the means of saving several thousands of Rupees to the Company.

From the above it will be judged how far it is profitable to be easy or flexible in our duty in our effort to be a favourite with the agents.

I am writing these lines purely from the point of view of what I personally think of the matter. It is not my intention to assume any air of superiority over my brother examiners and I shall be obliged by their not accusing me of doing it.

Finally, I must add that I have had the pleasure of meeting a few honest agents who, far from wanting any favour, have always expected me to be thoroughly searching in my examinations of their cases and held nothing but their own ill-luck accountable for failure of some of their cases through me.

9, Beparitola Lane, Yours faithfully,
Calcutta. Hriday Bhusan Mallik, M.B
The 28th June, 1937.

LYMPHATIC LEUKÆMIA

To The Editor,

Journal of the Indian Medical Association.

Dear Sir,

Will any of the readers of your esteemed Journal kindly throw some light on the treatment of a case of Lymphatic Leukæmia? X-ray treatment, arsenic, and iron have been extensively tried, but without the least benefit.

Brief History:—Age—23 years. Duration—8 months. Complaint—Hectic type of temperature, sweating with some pains in the long bones, especially at the ends and insomnia with increasing emaciation. There is no other symptom.

Blood:—W. B. C. Total Count—12,000 per cmm. Diff. Count—Lymphocytes—95%. R. B. C. 2½ millions per cmm. Hemoglobin 65%.

Urine—No abnormality.

Liver and Spleen—No enlargement. No enlargement of glands.

The 19th June, 1937. Yours faithfully,
Chauk Gumti, Lahore. Prakash Chandra, M.B., B.S.

DIPHTHERIA

To The Editor,

Journal of the Indian Medical Association.

Dear Sir,

While I regret having been unable to attend the clinical lecture on diphtheritic paralysis by our learned doctor Captain Sen Roy published in the July number of your Journal by the worthy Secretary of our association Dr. S. B. Sinha. I am glad this publication proved a stimulus for a study and I venture to send the following few notes which will be found not inappropriate to the case publsihed.

The incubation period of the disease commonly varies from two to four days; but symptoms may appear within twenty-four hours in a case of virulent infection. Incubation period is short generally when the source of infection is an open wound or when a large amount of infected material is received directly or in a mucous surface. Milk is an occasional channel of infection. It may derive its infectivity from the cow itself—suffering from an eruptive disorder which is believed to be a counterpart of human diphtheria. Cats readily contract this disease and are known to be concerned in giving the disease to healthy children.

75% of the cases are under ten years of age. Evacuations from sewage are fruitful source of diphtheria. Sewage gas producing a morbid condition of fauces is liable to reception of diphtheritic poison. Tonsillitis, whooping cough and measles may prepare the way for this poison.

Early onset denotes virulence of this poison.

Soft palate, muscles of accommodation, other ocular muscles, larynx, organs of taste and smell and limbs (usually bilateral) are the parts involved in order of frequency and there is scarcely a part of the body which may not be affected by paralysis. Even intercostal muscles, diaphragm and muscles of the neck may get affected. Muscles of the face and tongue are those most rarely affected. False membrane may be found extending even to the mucous lining of the intestines.

M. Aslam Omar, L.M.P.

Gonda, 20-7-37.

BOOK REVIEWS

DIAGNOSIS OF SOME DELUSIONAL INSANITY TYPES IN GENERAL PRACTICE: By Edwin Hopwell-Ash, M.D. (Lond.). Size: Foolscap 8-vo., pages 64. First Edition, 1936. Published by John Bale, Sons & Danielsson, Ltd., London.

This little handbook of 64 pages is a summary of the more important rules for diagnosis of certain delusional insanity types which the author has found useful in his practice.

The author first deals with the earlier features of the mental disease and rightly asserts the great importance of recognition of these early features in psychological medicine. Then comes a description of some of the classical forms of Schizophrenia followed by some diagnostic points for these different conditions. Towards the end will be found a list of quite interesting groups of illustrative cases.

The book has been rather too much condensed, a bit more elaborate descriptions of the different conditions would have certainly made the volume more useful.

S. C. Chatterjee.

OPERATIVE SURGERY, Vols. I & II: By Horsley and Bigger. Size: Royal 8-vo., pages 1387, Fourth Edition, 1937. Published by C. V. Mosby and Company, St. Louis. U. S. A.

Prof. J. Shelton Horsley and Prof. I. A. Bigger of Virginia, with collaboration of some of their colleagues have produced two volumes of Operative Surgery and the present review relates to the fourth (1937) edition thereof.

The authors are well-known to the medical profession for their contributions in building up what is called Modern Surgery. This book is, to a large extent, a record of their personal experiences, and as such a recent edition has been all the more desirable and welcome. Time was when qualification of a surgeon demanded only some knowledge of anatomy and mechanical dexterity but it is not so now. The outlook has completely changed and though importance is still put on the knowledge of anatomy, equal if not more stress is given on the physiologic and biologic principles of the tissues, bearing on the operation. It is no longer enough to remove a diseased part but it is ever more important that the

operation results in the restoration of the physiology of the tissues.

Real progress in modern surgery as aptly mentioned in the preface, lies not so much in the mechanical skill of a surgeon but in the study of biologic principles that concern function, nutrition, metabolism and repair of tissues and in the application of these fundamentals to operative procedures. Dr. Horsley and Dr. Bigger have specially attempted to stress this outlook in their work and I must say very ably done so.

Although no attempt has been made to include all the operations, as is usually done in a text-book of operative surgery yet the book covers quite a large part of the field.

More details would be desirable in a work of this nature regarding physiologic and biologic principles underlying operation on the cleft palate and fascial grafting in herniotomy.

There are included in the text details of many original operations which are not usually available and some of the chapters are extremely interesting and useful such as on cardio-vascular diseases, gastric surgery, and plastic surgery.

The work has been beautifully reproduced with excellent diagrams and will certainly form a valuable guide to those who want to specialise in surgery.

P. C. SANYAL.

PHARMACOPŒIA OF KING EDWARD VII MEMORIAL HOSPITAL: Size Crown 12-vo., pages 149, 1936.

The book, a neatly bound small volume presents a list of useful prescriptions and many useful informations. The appendix, an important feature in the book, shows the valuable inclusions of 'synopsis of changes in 1932 pharmacopœia,' 'vitamin and mineral contents of the different articles of food' and the 'posological table.' The special feature of the volume, however, is the inclusion of laboratory methods in a very concise form with all the practical details. The book will prove very useful to the senior medical students as well as the junior medical practitioners.

G. H.

MANUAL OF EMERGENCIES: BY SNOWMAN, Size Double Crown 16-mo., pages 401, Third Edition, 1936, published by John Bale, Sons & Danielsson Ltd., London.

Dr. J. Snowman, the author of the book has attempted and succeeded to a great extent in presenting in such a small volume the pathology, diagnosis and treatment of the wide range of emergencies which covers the fields of Obstetrics, Medicine and Surgery. The book has been brought up-to-date by introducing the most recent views and eliminating obsolete matters. The book will no doubt prove a very useful companion to the general practitioners.

G. H.

ACKNOWLEDGMENTS

RECEIVED FOR REVIEW

1. The Medical Annual. John Wright & Sons, Ltd., Bristol, England.

2. Failure of the Heart and Circulation. Messrs. John Bale Sons, & Danielsson, Ltd., 83, 85, 89, 91, Gt. Titchfield Street, London, W. 1.

3. Practitioners Library of Medicine and Surgery, Vol. XII. Messrs. Butterworth & Co. (India) Ltd. Avenue House, Chowringhee Square, Calcutta.